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ABSTRACT

The overall purpose of this institute was to provide opportunity for participants to update their knowledge of national, regional, and local occupational programs and trends and to provide an opportunity for them to meet and share program content and prepare written articulation agreements between the community colleges and the State Department of Education. The program provided team activities, seminars, group and individual activities in four occupational areas (Automotive-Mechanics, Business Education, Drafting, and Food Services Occupations). The program of study included three major phases. Phase I was an orientation and familiarization with selected occupational education programs; Phase II was a seminar and conference program to share documents prepared and/or distributed in Phase I and to arrive at common goals and objectives for each course; Phase IIA was a series of four island-wide workshops to present and review the written recommendations developed in Phase II to larger audiences; Phase III was a seminar and conference program to prepare final drafts of team recommendations in the form of an agreement, one for each area; and Phase IIIA was a program of information dissemination. The sections of the report are Collaborative Roles and Functions of Occupational Education Programs between Secondary and Post-Secondary Schools; Summary of Recommendations; Team Reports; and Appendices (Evaluation, Additional Attendants by Island, and Brochure Copy). (DB)

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INSTITUTE FOR ADVANCED STUDY IN VOCATIONAL-TECHNICAL EDUCATION: COLLABORATIVE ROLES AND FUNCTIONS OF OCCUPATIONAL EDUCATION PROGRAMS

October 1972-June 1973
Honolulu, Hawaii

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FOREWORD

Since the passage of the Community College Act of 1964 establishing public community colleges in Hawaii, there has been a need for articulation between secondary schools and community colleges. Each succeeding year as the enrollments increase this need has become more evident. Through this Institute, funded under Part F of the Education Professions Development Act, articulation problems and needs were discussed and examined and recommendations for implementation were formulated.

Over 180 participants in the Hawaii State Department of Education and Community College System from Oahu and neighboring islands were involved in this project. Leaders, resource persons, and participants spent numerous hours to evaluate the Food Services, Business Education, Drafting, and Automotive-Mechanics programs and agreed on problems and solutions and finally made recommendations. The vocational-technical education profession and the Office of the State Director for Vocational-Technical Education acknowledge their gratitude to these participants and especially to each of the four teams whose members are recognized elsewhere in this report. Particular recognition is due to the team leaders who were responsible for the coordination and leadership of their respective teams. These individuals included: Brian Chong, Larry Inaba, William Yamada, and Larry Zane for the Automotive-Mechanics team report; Lawrence Fukumoto, Iris Taketa, Bessie Taniguchi, and Hazel Tsutsui for the Business Education team report; Francis Furutani, Frank Kanzaki, Ken Kamimura, Marvin Poyzer, and Larry Wakui for the Drafting team report: and Fred Ditzel, Henry Kalani, and Doris McGinty for the Food Services team report.

Also a special note of thanks to Mrs. Emiko Kudo, Mrs. Barbara Nakagawa, and Mrs. Florence Sakai of the Department of Education for their substantive contributions and to Dr. John Baker of the College of Education, University of Hawaii for serving as evaluator.

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State Director for Vocational-
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INTRODUCTION

The overall purpose of this institute was to provide opportunity for participants to update their knowledge of national, regional, and local occupational programs and trends and to provide an opportunity for them to meet and share program content and to prepare written articulation agreements between the community colleges and the State Department of Education. The program provided team activities, seminars, group and individual activities in four occupational areas (Automotive-Mechanics, Business Education, Drafting, and Food Services Occupations).

PROGRAM OF STUDIES

The program of study included three major phases.

Phase I was an orientation and familiarization with selected occupational education programs. Student panels identified the current problems and issues and discussed and reviewed sample programs of articulation. Each participant planned individually and in teams a program of activities.

Phase II was a seminar and conference program to share documents prepared and/or distributed in Phase I; and to arrive at common goals and objectives for each course. Participants also formulated written team recommendations for articulation and options or alternatives on how to implement them. An orientation to selected vocational-technical programs was also included. Phases IIA was a series of four island-wide workshops to present and review the written recommendations developed in Phase II to larger audiences.

Phase III was a seminar and conference program to prepare final drafts of team recommendations in the form of an agreement, one for each area.

Finally, Phase IIIA was a program of information--dissemination. The planners of this project attempted a number of unique activities. First, they brought together four areas of vocational-technical education.

Automotive-Mechanics Occupations
Business Education Occupations
Drafting Occupations
Food Services Occupations

Second, they assembled teams representing the University of Hawaii, the State Department of Education, the community college and instructional staff to share the leadership in developing the institute in each of the four areas. Finally, representatives were invited to participate from all geographic districts of Hawaii.

All participants indicated a responsibility and a willingness to seek out whatever techniques, whatever procedures, whatever devices that may work most efficiently in any given set of circumstances in order to best meet the needs of our clientele--<u>the students in our high schools and community colleges</u>. They believed in the time tested adage--NOTHING VENTURED, NOTHING GAINED.

COLLABORATIVE ROLES AND FUNCTIONS OF OCCUPATIONAL EDUCATION PROGRAMS BETWEEN SECONDARY AND POST-SECONDARY SCHOOLS

What is articulation? What are the typical levels and forms of articulation? Why is articulation sorely needed in vocational-technical education?

One of the relatively recent words to enter the jargon of educators is that of "articulation." What is articulation? Webster's Seventh New Collegiate Dictionary defines the term in one way as "the action or manner of jointing or interrelating." Many educators, however, think of the term as a concept or idea. Other words which are used synonymously, include "coordination," "interfacing," "cooperation," "understanding," "acquainting," "uniting," "combining," "knowing," and "involving." In addition, many view articulation as a process with varying phases. Many educators feel that articulation must always be a continuous recycling of sequences or phases that need to occur as changes take place in people, changes take place in society, and changes take place in educational programs.

The general supervision and administration of the public secondary school system in Hawaii is vested in the Department of Education and the general supervision and administration of public community colleges is vested in the Office of the Vice-President for Community Colleges. The public school laws of Hawaii state that the public elementary-secondary school system is for persons between the ages of six and eighteen years of age. The law also states that public community colleges are for persons who are high school graduates or who are eighteen years or older.

The superintendent and the State Department of Education provide leadership and carry out the policies of the State Board of Education for

secondary schools. The President of the University and the Office of Vice-President for Community Colleges provide the leadership and carry out the policies of the Board of Regents for the community colleges. The Office of the State Director for Vocational-Technical Education is responsible for vocational education in the State.

Students, teachers, and various levels of administrators of academic and vocational-technical programs are found in both systems of public education. Both systems teach the same subject matter: typing, English, automotive-mechanics, history, power technology, shorthand, cooperative education, accounting, supervised food services, for example. Since educational and career development is a process rather than an event, and since both systems of public education under the governor of our State can offer identical and/or similar kinds and levels of instruction, educational programs in both the secondary system and the community college system need to be planned, conducted, and evaluated jointly. . .not independently. Manley stated the issue in these words:

> Articulated effort should be a reality in order to provide the continuum of education necessary for each student to develop to his full potential without unnecessary duplication of instruction and delay in attaining his educational and career objectives. (Manley, p. 5)

Articulation in any field is a very grave problem. Ask any admissions and records officer at the community college, a division chairman, or instructor, what happens when a student transfers? What happens, for example, when a student from Waianae High School with a major in architectural drafting transfers to the community college. Placement is something of a nightmare. It is reported that there are over FIFTY Oahu students matriculating at Maui Community College and an increase is predicted. Admissions officers, counselors, teachers, and department chairmen have

reported having difficulty advising students. Transferring from one college to another can also be difficult. At the high school level standardized courses and course guides are available but, numerous complaints indicate that, in reality, the content of these courses are not so clearly delineated. Countless hours of faculty and administrative time have been spent attempting to correctly assign incoming students who are transferring from high school to high school, from high school to community college, or from community college to community college. An educational system must help the student make this transition more smoothly.

The need for articulation between high schools and community colleges has become more evident as early admission programs begin to spread. Most high schools offer at least two courses in any one area. The obvious exception is English. Food Services I and Food Services II are courses offered in several high schools. Since no other classes are available, why is it not permissable for the student to be admitted to the community college to continue his food service program while still enrolled in high school?

Ask a colleague what is the most pressing problem in the State at this time? The answer is money or, probably, the lack of it. Institutions of secondary and post-secondary education are contemplating ways and means of cutting costs. They welcome ideas--innovations that reduce expenditures but produce the same, if not better, quality education.

Early admissions and with early graduation, or an earlier completion of career preparation, may be the solution. The recent Report of the Carnegie Commission on Higher Education of June, 1972, estimated that operational expenditures for higher education may be cut as much as

$15 billion by adopting certain measures. One recommendation encouraged the speeding up of studies, permitting students to earn a bachelor's degree in three years instead of four. What influence will this have in community college subject areas and secondary school subject areas? Such innovations may well transfer to the community colleges and finally to the high schools. The traditional twelve-year holding period to obtain a high school diploma may be on its way out.

The process of joining or inter-relating articulation--may involve industry and education. For example, inter-relating business and industry into the educational institution. The use of a technical or advisory committee to review the automotive program at a high school or community college is commendable. Articulation may also involve the community and education: for example, the Leeward Community College General Advisory Council with the Leeward Community College or a District Advisory Council with a District Department of Education. These involvements are important and needed, but the concern of this project is the articulation of subject matter taught in our high schools and community colleges. The course content of the programs at Leeward Community College, Honolulu Community College, Windward Community College, and other community colleges and the programs at Farrington High School, Kaimuki, Hilo, and other high schools must be examined.

TYPES OF ARTICULATION

There are a number of terms such as inter-institutional, intra-institutional, horizontal, and vertical articulation which are commonly defined as types of articulation.

1. Inter-institutional articulation is generally referred to as that which occurs between institutions. For example:

A high school with another school,
A community college with another community college,
A community college with a high school,
A university with a community college.

2. Intra-institutional is generally referred to as that which occurs within an institution. For example:

The Language Arts Department of a community college with the Math Department of the same community college,
The 12th grade English teachers with the 11th grade English teachers of the same high school.

3. Horizontal articulation is generally referred to as that which occurs at one level. For example:

All of the 12th grade automotive instructors from six or eight high schools meeting together,
All of the typing instructors from each of seven community colleges meeting together.

4. Vertical articulation is generally referred to as that which occurs between grade levels or between levels of instruction. For example:

All instructors of beginning and advanced typing getting together,
All high school and community college instructors meeting together.

For years community college instructors have complained of the inflexibility, or autonomy, of the University of Hawaii--Manoa Campus when students transfer from the community college to the University. Now, history repeats itself, community college instructors are applying that same inflexibility upon the high schools. Should this be the situation?

The focus of this project is on vertical articulation--between high schools and community colleges, and on horizontal articulation--between a community college and another community college, and between a high school and another high school.

Are there any problems? Definitely there are problems. Individually, one may not be able to solve them, collectively perhaps they may be solved.

If articulation efforts are to be effective, several suggestions appear to be in order:

1. There must be appropriate involvement of personnel. Those who deal most closely with the problems under consideration must be involved. The teacher of the subject being articulated must be involved. The subject area department of a division chairman, principal, or provost must be involved.
2. If the number of institutions involved precludes direct representation from each one, some means of desired representation should be considered. Public, private high schools, and colleges should be involved. Professional associations such as the Hawaii Practical Arts and Vocational Association, the Hawaii Industrial Arts Association, the Hawaii Business Education Association, and the Home Economics Association should be involved.
3. There should be procedural guidelines agreed upon for effective articulation such as:

   a. Identifying appropriate problems and their priorities.
   b. Initiating needed research and studies.
   c. Proposing solutions and alternate solutions.
   d. Ratifying and implementing agreements.

4. Participation should be voluntary. This may eventually be mandated if the duplication continues.
5. Ad hoc committees, standing committees, with overall administrative coordination in some form should be established.
6. Steps should be taken to insure good communication. Inter-campus visits, conferences, newsletters, etc. might be suggested.
7. State-wide activities should not be regarded as a substitute for local action. In other words, do as Leeward Community College has done when it found a need to articulate its drafting program.

They called a number of meetings to resolve the problems without waiting for system-wide actions.

There is much more to articulation than has been discussed above. Much has been left out, but there are three basic guidelines that need to be considered if articulation efforts are to be effective.

1. There must be an attitude of mutual respect and cooperation for each instructor and toward each instructor; respect of the high school instructor for the community college instructor, respect of the community college instructor for the high school instructor, respect of administrators irrespective of whether he is at the high school level, district level, or in a community college level.
2. The work must be carried out in an atmosphere of interdependence among institutions, the Department of Education and the community college system, the vocational-technical education program in the Department of Education, and the vocational-technical education program in the community college. This interdependence will grow as the proportion of the students who take their vocational-technical work in the high schools increases.
3. The work must be carried out as part and parcel of the mutual concern for providing students an opportunity to develop to their fullest potential.

Manley, Fred W., Articulation Between North Carolina's Public System of Elementary and Secondary Schools and Public System of Technical Institutes and Community Colleges. A report with suggestions for continuing efforts. North Carolina Research Coordinating Unit in Occupational Education. December, 1970, pp. 133. ED 051 375.

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Manley, Fred W., Articulation Between North Carolina's Public System of Elementary and Secondary Schools and Public Systems of Technical Institutes and Community Colleges. A report with suggestions for continuing efforts. North Carolina Research Coordinating Unit in Occupational Education, December 1970, p. 133. ED 051 375.

R E C O M M E N D A T I O N S

AUTO-MECHANICS TECHNOLOGY TEAM

PROBLEMS BETWEEN AND RECOMMENDATIONS FOR SECONDARY SCHOOLS AND COMMUNITY COLLEGES

Problem I

The high school automotive programs are not sufficiently uniform in content coverage and emphasis, hence, minimizing the chances for maximum articulation between the community colleges and the secondary schools.

Facts

A. The existence of a state guide for automotive programs in our secondary schools does not in and of itself insure its use in a consistent manner. There are evidences of inconsistencies in program emphasis which are in part due to the fact that the state guide is not being used effectively. Among other reasons for program inconsistencies are the following: limitations of resources and facilities; unique local school conditions (e.g. limited enrollments); differences in student interests and exposures; differences in teacher talents, experiences, and judgments; inappropriate teacher placement; and lack of proper teacher orientation to the appropriate utilization of the guide.

Assumptions

A. Although it is expected that there will always be differences in the levels of performance among students completing the secondary programs, effective use of the guides by the teachers help to insure a minimum level of performance among students entering the community college programs from the secondary programs.

B. Teacher participation in the development of the guide as well as in an appropriate orientation program designed for its effective use will result in greater consistency in the level of expectations among the secondary school programs.

C. The constraints of limited resources and facilities are realities facing many schools; thus, the decision to offer a program in automotive mechanics should bring with it a commitment to a long-range program of facility and resource development as well as a set of realistic program expectations which recognize the existence of such constraints.

D. Limited enrollment in a school is expected to affect the scope of operations and also necessitate adaptations to guide specifications.

E. There is a range of talents and experiences among automotive-mechanics teachers as in other instructional areas; thus, it is expected that there will be differences in instructional strategies, effectiveness of instruction, and scope of coverage in the various schools' programs

It is Recommended:

A. That the Industrial-Technical Power and Automotive Technology course guide be developed so as to provide Industrial-Technical automotive teachers with a chance to react and agree on course content.

B. That the draft copy of the Industrial Education Instructional Guide for Power be refined by automotive teachers.

C. That the secondary schools automotive teachers adhere to the agreed course content, thereby carrying out maximum articulation with the community colleges and making adaptations necessitated by existing constraints such as limitations of facilities, resources, teacher experience, and student enrollment. Individualized instruction should be given wherever feasible.

D. That all the automotive-mechanics teachers and secondary principals be provided copies of the articulation agreement between the community colleges and the secondary schools.

Implementation

The Vocational-Technical Curricula section of the Department of Education should take the leadership and initiative in the development of both the above mention guides. The reaction and subsequent agreement should be completed by April 1974, and orientation meetings on the revisions by August 1974, to implement the program beginning September 1, 1974.

Starting September 1, 1974, all secondary, automotive-mechanics teachers will adhere to the agreed course content; but schools unable to comply completely, because of constraints described above, will make the necessary adaptation.

As soon as the agreement is accepted, copies will be sent to all secondary and community college automotive-mechanics teachers and secondary school principals.

Problem II

There is a need to review and agree upon the current course offerings in the community colleges and to disseminate this information to effect horizontal articulation.

Facts

A. Instructional units and courses are not in consonance with regard to titles, numbers, credit hours, and total hours.

B. There are differences in modular scheduling.

C. There are no provisions for course equivalency to effect a sound, inter-college transfer procedure for students.

Assumptions

A. There is a need to agree on the numbering, scheduling, and equating of courses for transfer of students.

C. There is a need for closer, horizontal communication.

Alternatives

A. Establish uniformity in course offerings with regard to titles, numbers, credit hours, and total hours guided by the AMA-AVA Council's Guide* and advisory committees' recommendations.

B. Provide more flexibility and options for students.

C. Establish an articulation committee of community college instructors to identify problems and recommend curriculum changes.

D. Distribute both course outlines with changes and student flow charts.

It is Recommended:

A. That an articulation committee of community college, automotive-mechanics technology instructors be established to review and agree upon uniformity of courses and to effect future changes.

B. That the automotive-mechanics programs in the community colleges provide more flexibility and student options with resources now available as per example:

   1. Leeward's modular scheduling that provides for courses in length from two to sixteen weeks.

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*Automotive Manufacturers & American Vocational Association Industry Planning Council, Community College Guide for Associate Degree Programs in Auto and Truck Service/Management, Automotive Manufacturers Association, Michigan, 1960.

2. Honolulu's semi-modular scheduling that provides for courses in length from five to sixteen weeks, coupled with provisions for three entry course offerings every semester.

C. That through the established community college curriculum committee procedures, an agreement be adopted for course equivalency without regard, for the time being, to differences in credit hours or total contact hours.

D. That the community colleges continue to distribute course outlines and student flow charts to all community colleges.

Implementation

A community college automotive-mechanics and diesel-mechanics curriculum workshop was held from March 23-25, 1973 to initiate action on the recommendations. The workshop, funded by the EPDA Part F Institute, included all community college isntructors in the automotive- and diesel-mechanics technology programs. The proposal for state-wide uniformity of courses in the automotive- and diesel-mechanics technology shall be presented through established curriculum committee procedures and implemented in the Fall semester of 1974.

The effectiveness of the proposal shall be determined by the facility with which student inter-college transfer can be effected. The ultimate goal is that any student inter-college transfer can be effected without any loss of time and without anxiety to the student.

Problem III

Presently, there are no provisions for vertical articulation between the secondary schools and the community colleges.

Facts

A. The procedures for challenging courses (credit by examination) are not clearly established.

B. There is a duplication of training between the secondary schools and the community colleges.

C. There is a lack of an exchange of information between the secondary schools and the community colleges.

D. The secondary school, automotive teacher's recommendations for placement are not uniformly accepted.

Assumptions

A. A student's zest for learning is dampened when he is required to repeat a course or part of a course.

B. Any student may challenge a course for credit (credit by examination).

C. A secondary school teacher's recommendation for advanced placement of his former student is a valid recommendation.

It is Recommended:

A. That the following options be provided in the placement of secondary school students who enroll in the community college automotive-mechanics program.

   1. A student may challenge a community college course which is comprised of a final examination and a performance test.

   2. A student may submit for consideration both his secondary school teacher's detailed, written recommendation and his probationary credits.

   3. A student may submit for consideration both his secondary school teacher's detailed, written recommendation and a performance test at the community college.

   4. A student may submit for consideration, his secondary school teacher's written recommendation listing specific behavioral objectives.

B. That the community colleges and the district superintendents jointly exercise the leadership in the establishment of an official communication channel between the community colleges and the secondary schools.

C. That the community colleges distribute course outlines and student flow chart to the secondary schools of the Department of Education.

Implementation

The community colleges may presently exercise any option feasible and desirable. The total optional program shall be implemented by the Fall of 1975.

In order to continue to maintain a close liaison and cooperation, an official channel is necessary and vital. This channel, to be acted upon by the district superintendents and the community college officials, shall be established by January, 1974. Also, in keeping

with the official channel, all information on course outlines and student flow charts shall be distributed to all secondary school, automotive-mechanics instructors and principals to keep them apprised of the latest changes.

Problem IV

There is a lack of in-service training available to the automotive-mechanics technology teachers in the State of Hawaii.

Facts

A. There are presently no extended day classes tailored for automotive-mechanics technology instructors.

B. The industry-sponsored workshops are usually conducted during working hours.

C. The University of Hawaii does not have any courses in the automotive area.

Assumptions

An automotive instructor's technical knowledge needs to be constantly updated in order to keep up with the changes in the automotive industry.

Alternatives

A. Provide more community college short-term, intensive-training courses.

B. Request the community colleges or University of Hawaii to offer summer courses for credit.

It is Recommended:

A. That the community colleges or the University of Hawaii be requested to provide classes tailored for automotive-mechanics technology instructors. These courses would be for credit applicable for certification and reclassification.

B. That the State Director of Vocational Education request the industries to conduct the industry-sponsored workshop during non-working hours.

Implementation

The Department of Education, Vocational Education section shall conduct a survey of possible areas of interest for a workshop or for workshops. The results of the survey shall be submitted to the State Director of Vocational Education and to the Hawaii Automotive Teachers Association in January, 1974, for input and assistance on the possible workshops, courses, and dates. The date for the first summer workshop shall be in 1974.

The community colleges through the medium of the advisory council chairman shall make a request to the industries to hold workshops during non-working hours so that more community college and secondary school instructors may be able to attend. This request shall be made as soon as possible but no later than December, 1973.

Problem V

In order to establish uniform policies and/or to ensure total articulation of programs, there is a need to review the current status and organization of automotive advisory committees and their role.

Facts

A. Each community college currently has an appointed advisory committee.

B. There is some duplication of membership on the advisory committees, especially on Oahu.

C. All secondary schools do not have automotive advisory committees.

Assumptions

A. There is a need for a state-wide committee to recommend uniform policies.

B. For each alternative type of advisory committee (see list below) there are advantages and disadvantages.

C. There is a need to maximize articulation by combining secondary school and community college advisory committees in automotive-mechanics technology.

D. A state-wide advisory council will tend to overlook local problems and at the same time tend to lose its identity with the local community.

E. The establishment of a state-wide advisory council will necessitate more funds.

Alternatives

A. Establish a state-wide advisory committee for all community colleges and secondary schools.

B. Retain current, individual, community college advisory committees with the addition of secondary school representative(s) and utilize the Community College Guide for Associate Degree Programs in Auto and Truck Service/Management as a guide.

C. Establish a combination of Alternatives A and B above.

D. Establish a county-wide advisory committee for community colleges and secondary schools.

E. While retaining current practices on neighbor islands, establish an Oahu-wide advisory committee for community colleges and secondary schools.

F. Retain individual, community college advisory committees utilizing the Guide* and establish county-wide advisory committees, both committees should include high school representatives.

It is Recommended:

That current, individual, community college advisory committees in automotive-mechanics technology be retained, but that representative, secondary school instructors be added to this committee and that these committees utilize the Guide* as a guideline for anticipated revisions in the automotive-mechanics technology programs.

Implementation

The implementation plan of the above recommendation shall be initiated at the first meeting of the community college, advisory committee meeting. Through the District Office, secondary school instructors shall be requested to submit names and to select a representative or representatives from the list. Notification of selected representative or representatives will follow to all secondary schools and community colleges. The date of submission of names to the community college advisory committees shall be February 1, 1974.

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*Community College Guide for Associate Degree Programs in Auto and Truck Service/Management was prepared for educators and industry as a special project of the Automobile Manufacturers, American Vocational Association, Industry Planning Council in cooperation with the Service Managers Committee of the Automobile Manufacturers Association, Inc. c 1969, p. 79.

INDUSTRIAL ARTS AND INDUSTRIAL-TECHNICAL COURSES

SPECIAL ELECTIVES, INDUSTRIAL ARTS

1101 AUTOMOTIVE MECHANICS I

Objectives

1. Develop introductory skills and knowledge in the selection, care and maintenance of an automobile.
2. Make simple diagnosis and repairs.

Description

An introductory course in the general construction, nomenclature, function, selection and care of the automobile. The student acquires an understanding of scientific and mechanical principles involved in the various components of the automobile through maintenance, adjustment, servicing, and repair activities.

1102 AUTOMOTIVE MECHANICS II

Objectives

1. Diagnose and repair the hydraulic, mechanical and electrical systems of motor vehicles.
2. Apply industrial safety practices in the repair and operation of motor vehicles.

Description

Major attention is given to the application of the principles involved in the operation and service of the automobile. Emphasis is placed on maintenance, adjustment, and repair of the automobile. Safe practices in the lab and on the highway are stressed.

SPECIAL ELECTIVES, INDUSTRIAL-TECHNICAL

2001 POWER AND AUTOMOTIVE TECHNOLOGY I

Objectives

1. Develop basic, entry-level skills in the power and automotive technology occupations.
2. Acquire and apply knowledge in the conversion and utilization of power.

Description

Organized experiences in the design and function of power systems employing various types of engines, mechanisms involved in the development, transmission, and control of power, with emphasis on dynamic analysis of specific units and their application.

2002 POWER AND AUTOMOTIVE TECHNOLOGY II

Objectives

1. Develop basic, entry-level skills to a higher degree of proficiency in the power and automotive technology occupations.

2. Acquire and apply knowledge in the repairing and maintaining of all types of automotive vehicles.

Description

Classroom and shop experiences which include training in all phases of automotive maintenance repair work on all types of automotive vehicles. Included is training in the use of technical manuals and a variety of hand and power tools. Instruction and practice are provided in the diagnosis of malfunctions, disassembly of units, parts inspection and repair or replacement of parts involving the engine, ignition system, carburetion, brakes, transmissions and alignment. Simulated class experiences and on-the-job experiences are included.

*Extracted from Authorized Courses and Code Numbers 1972-73, Office of Instructional Services, Department of Education, State of Hawaii, October, 1972.

ADDENDUM TO AUTOMOTIVE MECHANICS TECHNOLOGY TEAM REPORT

A. Automotive Mechanics Technology

Actions taken on Recommendation made as a result of Problem II.

Problem II

There is a need to review and agree upon the current course offerings in the community colleges and to disseminate this information to effect horizontal articulation.

Program Description

The student who has successfully completed appropriate courses in the automotive-mechanics curriculum will be prepared for employment.

The program is designed to develop degrees of proficiency which will allow the student to:

1. be employed in industry.

2. advance to positions of increasing responsibility.

3. pursue advanced education at institutions of higher learning.

Major Courses

Major course descriptions for all programs are identified for a student to be awarded a Certificate of Completion, Certificate of Achievement, or an Associate in Science degree, as appropriate.

Related and general education course descriptions and requirements for programs of individual campuses are not detailed in this proposal for a state-wide automotive-mechanics technology curriculum. Reference is made to the individual college catalog for related and general education course requirements.

Major Course Numbering

AMT 110-119 - Introductory

AMT 120-129 - Engine and Related

AMT 130-139 - Fuel, Electrical, and Accessories

AMT 140-149 - Power Train

AMT 150-159 - Brake, Suspension, and Steering

AMT 160-169 - Diagnosis and Repair or Cooperative Training

Description of Courses

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Introduction to Automotive-Mechanics	AMT 110	1	20	HA, K, L, M

Course Description

This course is designed to provide the student with insight in the field of automotive-mechanics. Included is the proper use and care of hand tools, measuring tools, and equipment. Safety practices and the use of flat rate service manuals, parts manuals, and service bulletins are also covered.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Engines	AMT 120	7	180	HA, HO, L, M
Engines I	AMT 120A	3	75	K
Engines II	AMT 120B	4	105	K

Course Description

This course is designed to provide the student with related technical information in the operation, construction, design, service and repair of internal combustion gasoline engines. The course also provides practical skills necessary in disassembling, inspecting, precision measuring, repairing or replacing of parts, reassembling and fianl adjusting of engines.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Fuel Systems	AMT 130	3	75	HA, HO, K, L, M

Course Description

This course is designed to provide the student with related technical information in the characteristics, operation, construction, design, service and repair of fuel systems.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Electrical Systems	AMT 135	9	180	HA, HO, K, M

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Ignition Systems	AMT 135A	4	90	L
Electrical Systems	AMT 135B	5	90	L

Course Description

This course is designed to provide the student with related technical information in the operation, construction, design, service and repair of the starting, charging, ignition, lighting and accessory systems.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Automotive Air Conditioning	AMT 136	3	75	HO, K, L

Course Description

This course is designed to provide the student with related technical information in the operation, construction, design, service and repair of automotive air-conditioning systems.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Power Train	AMT 141	5	120	HA, HO, K, L, M

Course Description

This course is designed to provide the student with related technical information and manipulative skills in the maintenance and repair of clutches, standard transmissions, propeller shafts, universal joints, differentials and rear axles.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Automatic Transmission	AMT 146	5	105	HA, HO, K, L, M

Course Description

This course is designed to provide the student with related technical information in the operation, construction, design, service and repair of automatic transmissions.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Suspension and Steering	AMT 153	3	75	HA, HO, K, L, M
Wheel Balancing	AMT 153A	1	20	L

Course Description

This course is designed to provide the student with related technical information and manipulative skills in the maintenance and repair of standard and power steering gears, front and rear suspensions, wheel alignment and balancing.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Diagnosis and Repair	AMT 160	Var.	225 Min.	HA, HO, K, M
Diagnosis & Repair Power Train	AMT 160A	4	90	L

Course Description

This course is designed to provide the student with a realistic, on-the-job type of training. The student will be exposed to different types of live jobs to build his self-confidence, to improve his approach to trouble shooting and practice his skills of the trade with emphasis on accuracy, neatness, and speed.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Emission Control Systems	AMT 161	1	30	HA, HO, K, L, M

Course Description

This course is designed to provide the student with diagnosis and service procedures as they pertain to the function of vehicle emission control systems and devices. The course is tailored to provide advanced students and in-service mechanics with the working knowledge to properly diagnose trouble, service and repair crankcase, exhaust, and evaporative emission control systems.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Cooperative Education	AMT 168	Var.	Var.	HA, HO, K, L

Course Description

Cooperative vocational education in specific occupational areas provides students with practical work experiences to apply classroom knowledge and to develop job competency. Employment in the private and public sectors of the automotive industry and service organizations is correlated as closely as possible to the student's curriculum and individual interests.

B. Diesel Mechanics Technology

Program Description

The courses in the Diesel Mechanics curriculum will prepare students for employment in the heavy equipment, diesel, and related mechanical fields.

Major Courses

Major course descriptions for all programs are identified for a student to be awarded a Certificate of Completion, Certificate of Achievement, or an Associate in Science degree, as appropriate.

Related and general education course descriptions and requirements for programs of individual campuses are not detailed in this proposal for a state-wide automotive-mechanics technology curriculum. Reference is made to the individual college catalog for related and general education course requirements.

Major Course Numbering

The revised two-digit course numbering is followed by parenthetical, three-digit numbering to facilitate the transfer of credit for courses that meet the precise needs of the student's programs as designated by the appropriate Manoa department.

DM 20-29 (120-129) - Engine and Related

DM 30-39 (130-139) - Fuel, Electrical and Accessories

DM 40-49 (140-149) - Power Train

DM 50-59 (150-159) - Not Assigned

DM 60-69 (160-169) - Diagnosis, Cooperative Training, Advanced Work

Description of Courses

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Engines	DM 21 (121)	11	400	HA
		10	320	HO

Course Description

This course is designed to provide the student with the knowledge of engine design, service, construction, theory, and of operating principles of the internal combustion engine. The course will also provide the student with the necessary skills required to maintain, repair, and service the engine.

Course Objectives

The student will be able to:

1. use and understand manufacturer's specification charts.
2. estimate the appropriate labor and material costs for both minor repair and engine diagnosis and repair.
3. perform the required inspection, service, and repair of the engine and its components.
4. check and adjust valve clearance.
5. install injectors and set timing where applicable.
6. apply preventive maintenance performance tests and service as outlined by the manufacturer.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Fuel Injection and Electrical Systems	DM 31 (131)	11	400	HA
		10	320	HO

Course Description

The purpose, design, construction, theory, and operating principles of fuel and electrical systems are covered in this course. Special emphasis is placed on developing the skills required to service, repair, test, and adjust the components and their associated systems.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Power Train	DM 41 (141)	11	400	HA
		10	320	HO

Course Description

This course is designed to provide the student with the technical knowledge of the purpose, design, service, construction, and of operating principles of drive and power trains. Trouble shooting, repair, and adjustment procedures are emphasized.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Diagnostics	DM 61 (161)	11	400	HA
		10	320	HO

Course Description

This course is designed to enable the student to put into practice the information and skills he has accumulated during the first portions of his training program and to introduce him to special systems found in diesel and heavy equipment usage. Trouble shooting, servicing, repairing, and adjusting skills are stressed.

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*KEY: Hawaii Community College (HA)
Honolulu Community College (HO)
Kauai Community College (K)
Leeward Community College (L)
Maui Community College (M)

R E C O M M E N D A T I O N S

BUSINESS EDUCATION TEAM

THE PROPOSED PLAN

RECOMMENDATIONS

It is recommended that:

1. the University of Hawaii community colleges and the Department of Education accept the implement the proposal for certification.

2. an articulation committee be established and funded by the Office of the State Director for Vocational-Technical Education.

3. the certification procedures be evaluated at the end of the second school year after implementation.

PROCEDURES FOR CERTIFICATION

1. Each subject area and/or level teacher should review the respective attached "Minimum Criteria for Certification."

2. The teacher's professional judgment will determine whether or not a student has successfully completed the requirements as indicated. It is possible that a student may attain the minimum proficiency level before the end of the course, but certification may more likely occur at the end of the semester or academic year.

3. A teacher certifies each student who qualifies by awarding him a wallet-sized certificate for each specific course and level. The certificates may be obtained from the chairman of the business education department. The chairman should obtain the certificates by contacting the Practical Arts Vocational-Technical Section of the Department of Education.

4. The teacher should sign and date the certificate (EXHIBIT L) and give it to the student who, if he wishes, can present it to community college personnel at the time of registration. This certificate will be used for placement, and the student may be allowed to enroll in the next appropriate level for that particular subject.

5. Upon successful completion of the higher level course at the community college and upon application, the student will be granted credits for the lower level courses for which he was certified.

   Example: A student completes Typewriting I as a 10th grader in high school and is awarded a certificate. Whenever he enters a community college, he may be allowed to register for Typewriting II. The community college instructor determines the satisfactory completion of Typewriting II and gives approval for the student to apply for credits for Typewriting I which can be applied towards the total college credits.

6. The final decision of the level of placement will be determined by the community colleges if any questions arise as to the validity of the certificate because of the time element (time lapse between certification and community college matriculation). The present option to challenge a course will still be available to students (credit by examination).

7. It would be desirable for each teacher granting certificates to submit to the department chairman a list of students' names to be filed and used as necessary for later reference.

MINIMUM CRITERIA FOR TYPEWRITING LEVEL I CERTIFICATION

The following requirements should be used throughout the school year to evaluate each student for certification for typewriting Level I:

1. Keyboard Mastery and Basic Typewriting Techniques (See Appendix I)

   a. Mastery of the keyboard using the touch system (EXHIBIT A).

   b. Identification if major distinguishing features of most commonly used manual and electric typewriters (EXHIBITS B AND C).

   c. Care of the typewriter (EXHIBIT D).

2. Speed

   a. Straight copy: 35 gwam for five minutes with not more than five errors at least three times. If the student makes more than five errors, his timed writing is automatically disqualified.

      Syllabic intensity of material used for timed writing--1.4.

   b. Numbers only: 20 gwam for one minute with not more than one error at least three times.

3. Production

   NOTE: All typewritten copies should be proofread and errors neatly corrected.

   a. Personal and business letters--blocked and modified block (EXHIBITS E-1 AND E-2). Student should be able to type within 45 minutes two short (about 100 words) mailable letters with an envelope and one carbon each.

   b. Tabulation--simple, open table from arranged copy, three columns, including main, secondary, and columnar headings within 30 minutes (EXHIBIT F).

   c. Manuscript--two page, unbound manuscript with footnotes within 45 minutes (EXHIBIT G).

4. Composing at the Typewriter

   Examples of creative typewriting:

   a. Sentence completion.

   b. Adding sentences to a given opening statement to form a complete paragraph. To evaluate the paragraph, look for complete sentences, correct spelling, punctuation, and decide whether there is a central thought within the paragraph.

MINIMUM CRITERIA FOR TYPEWRITING LEVEL II CERTIFICATION

The following requirements should be used throughout the school year to evaluate each student for certification for Typewriting Level II:

1. Keyboard Mastery and Basic Typewriting Techniques (See Appendix I)

   a. Mastery of the keyboard using the touch system (EXHIBIT A).

   b. Knowledge of principal parts and functions of the typewriter (EXHIBIT B AND C).

   c. Care of the typewriter (EXHIBIT D).

   d. Mechanics to typewriting--set margins, set tab stops, center material horizontally and vertically, squeeze letters, spread letters, draw lines, and align letters.

   e. Use of reference materials for word division, spelling, punctuation, etc.

2. Speed

   a. Straight copy: 45 gwam for five minutes with not more than five errors at least three times. If the student makes more than five errors, his timed writing is automatically disqualified.

      Syllabic intensity of material used for time writing--1.4.

   b. Numbers only: 25 gwam for one minute with not more than one error at least three times.

3. Production

   NOTE: All typewritten copies should be proofread and errors neatly corrected.

   a. Personal and business letters--blocked and modified block (EXHIBITS E-1 AND E-2). Student be able to type within 45 minutes two medium (about 130 words) mailable letters from unarranged copy with an envelope, and one carbon each. These letters may include mailing notation, attention line, postscript, subject line, etc. (EXHIBIT H).

   b. Tabulation--one ruled and one open table from rough draft copy, three columns including main, secondary, and column headings, each within 30 minutes (EXHIBIT I).

   c. Manuscript--two-page manuscript from rough draft copy with footnotes within 45 minutes (EXHIBIT J).

   d. Business Forms--a variety of business forms such as purchase orders, invoices, memos, job abpplication.

4. Composing at the Typewriter

   a. Sentence completion.

   b. Adding sentences to a given opening statement to form a complete paragraph. To evaluate the paragraph, look for complete sentences, correct spelling, punctuation, and decide whether there is a central thought within the paragraph.

   c. Compose at the typewriter a short letter of at least two paragraphs (minimum 50 words). The finished copy should include all the parts of a mailable letter.

MINIMUM CRITERIA FOR SHORTHAND LEVEL I CERTIFICATION

The student should be able to take three 3-minute, new-matter dictation at 60 wam and transcribe each on the typewriter or in longhand within 30 minutes with 95 percent accuracy (EXHIBIT K).

Upon meeting the above requirements, the student may be certificated to enroll in Level II Shorthand. If the student completes Level II Shorthand satisfactorily, he may upon application be granted credit for Level I Shorthand.

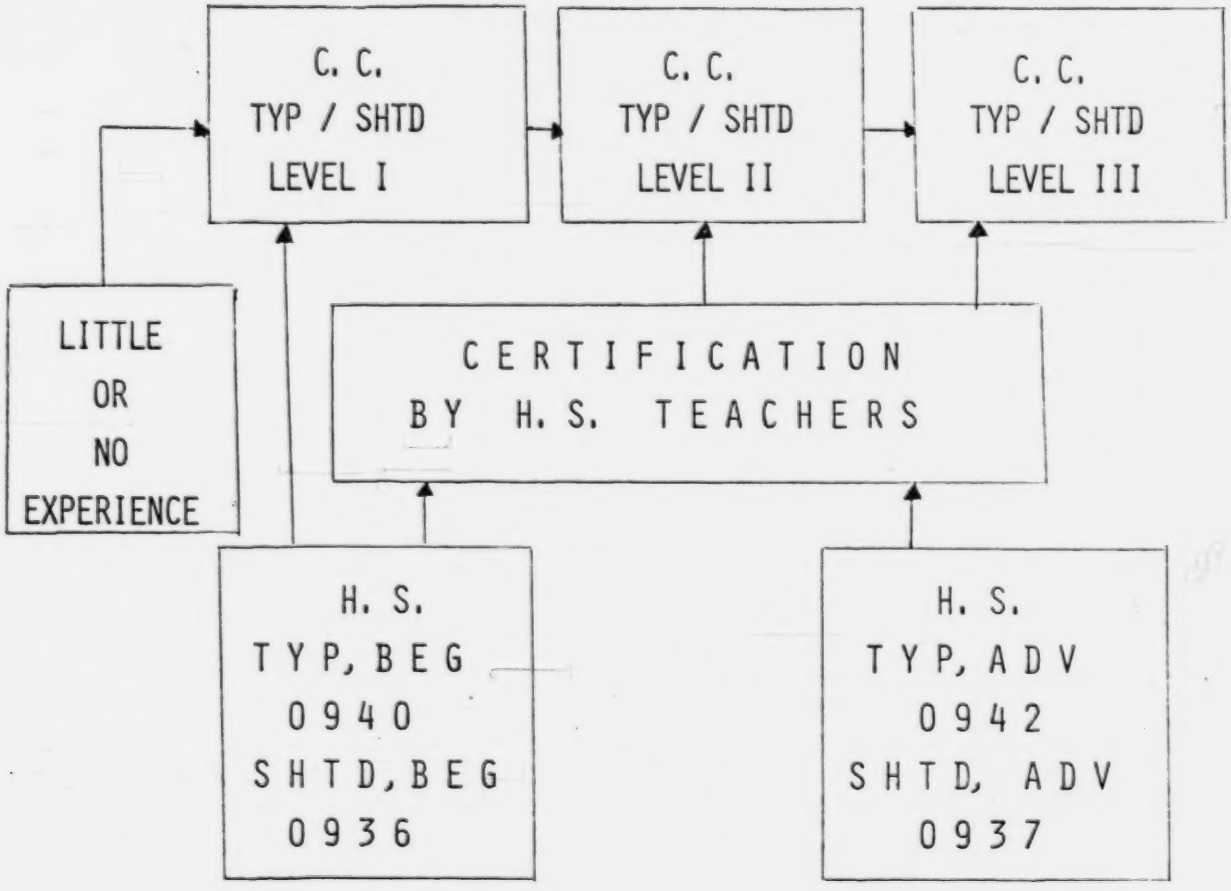
MINIMUM CRITERIA FOR SHORTHAND LEVEL II CERTIFICATION

The student should be able to take three 5-minute, new-matter dictation at 80 wam and transcribe each on the typewriter within 45 minutes with 98 percent accuracy (EXHIBIT K).

The student should be able to transcribe in mailable form within 30 minutes two short (100 words each) business letters dictated at 80 wam.

Upon meeting the above requirements, the student may be certificated to enroll in Level III Shorthand. If the student completes Level III Shorthand satisfactorily, he may upon application be granted credit for Level I and Level II Shorthand.

PROPOSED NORMAL STUDENT FLOW CHART



OPTIONS:

TAKE EXAM FOR CREDIT

REPEAT CERTIFICATED LEVEL

BUSINESS EDUCATION STATE ARTICULATION COMMITTEE

There is definitely a need for continuing articulation; therefore, we recommend that a Business Education State Articulation Committee be formed for the following purposes:

1. to plan the activities pertaining to articulation among community colleges and among secondary schools (horizontal),

2. to plan the activities pertaining to articulation between community colleges and secondary schools (vertical),

3. to implement, where feasible, the recommendations arising from these activities,

4. to articulate with the professional organizations, and

5. to articulate with the business community.

Funds will be required to coordinate the following articulation activities:

1. quarterly meetings of the Business Education State Articulation Committee.

2. workshops, seminars, visits.

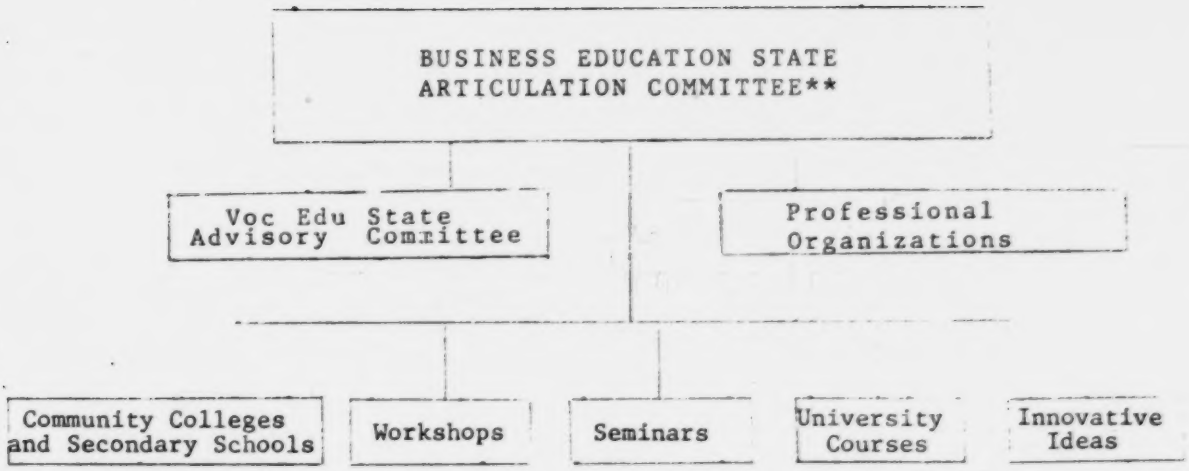
3. meetings to effect horizontal, vertical, and other articulation activities such as meetings with professional organizations and with representatives from the business community.

4. teacher-exchange program.

The committee will be composed of eight members from the Department of Education, one from each school district and one representative from the State Business Education Office to serve as an ex-officio member; and seven members from the community college system, one from each college campus and one representative from the University of Hawaii Community College System to serve as an ex-officio member. It is recommended that a representative from the private schools be invited to participate.

Each district representative, working with the State Business Education Office, will initiate and follow through in the selection of BESAC members. Each community college will be requested to elect a member to BESAC.

Normal term of service is two years; initially seven of the thirteen members will be selected from the EPDA Part F workshop participants and will serve for one-year terms. This will insure continuity.



**Members: Secondary Schools

* 1. Hawaii District
* 2. Kauai District
\+ 3. Maui District
* 4. Oahu - Central District
* 5. Oahu - Honolulu District
\+ 6. Oahu - Leeward District
\+ 7. Oahu - Windward District
8. Department of Education Program Specialist (Ex-officio)
9. Private Institution Representative (non-voting, by invitation)

* = One-year term
\+ = Two-year term

**Members: Community Colleges

\+ 1. Hawaii Community College
* 2. Kauai Community College
* 3. Maui Community College
* 4. Kapiolani Community College
\+ 5. Leeward Community College
\+ 6. Windward Community College
7. Community College Office (Ex-officio)

* = One-year term
\+ = Two-year term

R E C O M M E N D A T I O N S

DRAFTING TECHNOLOGY TEAM

RECOMMENDATIONS

A state-wide planning committee composed of representatives from each of the community colleges, from the secondary level, and from the state university has met extensively to discuss and design the proposed state-wide drafting program. As outlined below, it stipulates both the vertical articulation needed among the different levels of educational institutions and also the horizontal articulation proposed between colleges in the University of Hawaii Community College System. It is strongly recommended that this proposal be discussed throughout all levels of state agencies and institutions related to drafting and that immediate steps be taken to adopt the proposed articulation agreement.

VERTICAL ARTICULATION

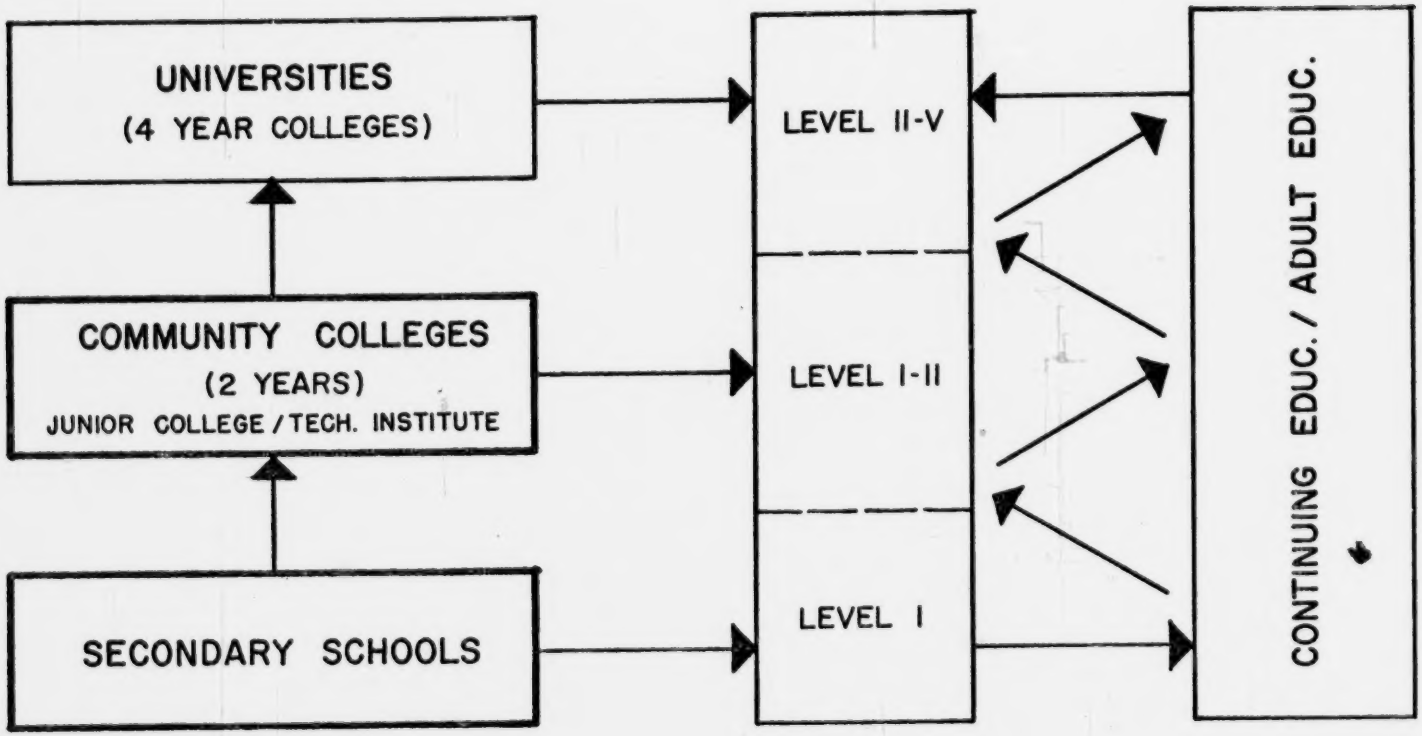
Because of individual differences in interest, desires and aptitude, there should be several avenues available to the student who wants to make a career in the drafting occupational area. The proposed program has provided for individual differences by segregating broad categories of educational opportunities, as described in Chart I.

A high school graduate who has completed a program in drafting can find employment at the lower steps of the career ladder as an office boy or possibly as a tracer. He is restricted to Level I job opportunities (see APPENDIX B) and must await his opportunity to get "on the board" and learn on the job.

A more desirable approach calls for a person to receive more formal training at a community college. With five campuses having drafting programs, a majority of the employers depend upon the community colleges for new, entry-level draftsman. Moreover, a person with a post-high school,

CHART I

CAREER OPTIONS FOR DRAFTING



*NOTE: JOB TITLES CORRESPONDING TO SPECIFIC LEVELS ARE LISTED IN APPENDIX B.

two-year, formal background has greater options in securing a job. In addition to that of a draftsman, he may qualify for related jobs, such as sales in building materials or in different phases and types of construction work. In other words, unlike the high school graduate, the community college graduate avails himself to Level II careers as well as Level I.

Upon completion of the community college program, a student may continue his education at a four-year college. Successful completion at this level will open even greater options for jobs ranging all the way up to Level V.

Although the educational accomplishments at different levels may be very important, it is equally important for the graduate to feel that learning is a never-ending process, formally or informally. Enrollment in Continuing Education and Adult Education classes plays an essential role and serves to keep one abreast of technological changes and to provide the vehicle for upward job mobility.

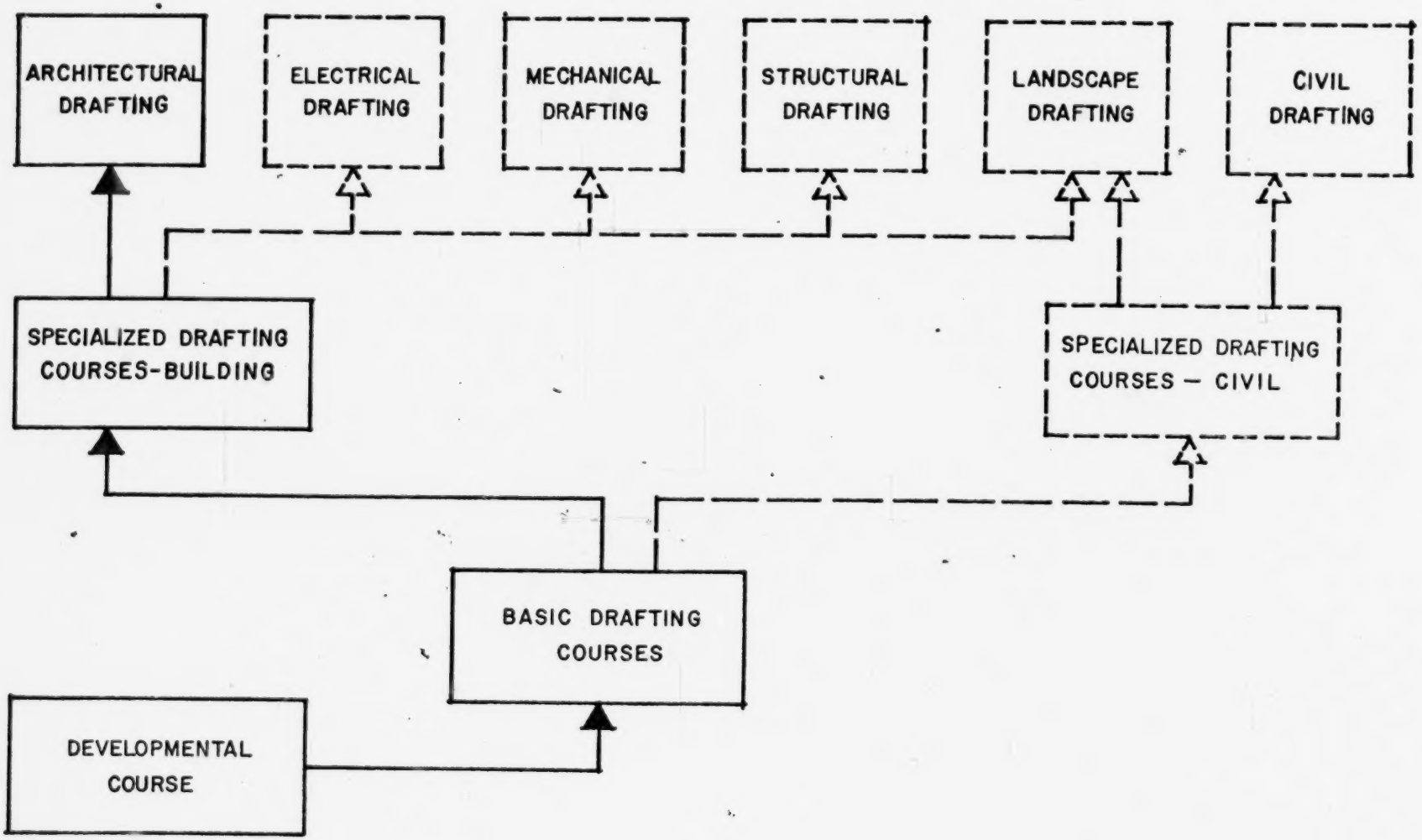
HORIZONTAL ARTICULATION

Course Clusters

With each community college having a different drafting curriculum, state-wide vertical articulation is difficult to achieve. Chart II depicts the proposed drafting program recommended for adoption by all the state community colleges. Solid-line boxes represent course clusters which should be adopted; the second phase represented by boxes with broken lines will be developed.

CHART II

A PROPOSED STATEWIDE COMMUNITY COLLEGE DRAFTING TECHNOLOGY PROGRAM



In the first phase of articulating this state-wide program, the community colleges will move toward standardizing the courses they now offer; the second phase will develop courses giving additional options to students. The first phase would include an integration and development of the content and objectives for four principal course clusters; developmental course, basic drafting courses, specialized drafting courses, and architectural drafting option courses. The developmental course is essential for minimal success in basic drafting courses. The architectural drafting specialty option was selected for the initial stage since it is one specialty presently provided by all campuses and accords the easiest transition to a state-wide, integrated plan.

Because more options need to be provided, the second phase of development stresses specialized course work in electrical, mechanical, structural, and landscape drafting which, as seen from the chart, stems from the specialized drafting cluster. To provide specialization in the civil drafting option as well as landscape drafting option the specialized cluster in civil courses needs to be included.

Curriculum

For each of the four clusters in the first phase, specific courses have been recommended. These course titles, their course numbers, and credit allocations are described below:

I. Developmental Course:

(To be taken by students who do not have drafting background)

Course No.	Credits	Course Title
DT - 10	4	Introduction to Drafting I

II. Basic Courses:

(To be taken by all students majoring in the drafting occupational area)

Course No.	Credits	Course Title
DT - 100	3	Graphics for Drafting
DT - 101	3	Drafting II

III. Specialized Drafting Courses--Building:

(To be taken by students who will specialize in Architectural, Electrical, Mechanical, Structural or Landscape Drafting Options)

Course No.	Credits	Course Title
DT - 120	3	Construction Materials I
DT - 122	*Var. 1 or 3	Floor Plan and Stairs
DT - 123	Var. 1 or 3	Structural Section
DT - 124	Var. 1 or 3	Roof and Floor Framing Plan
DT - 125	Var. 1 or 2	Foundation
DT - 126	Var. 1 or 2	Plot Plan, Utility Lines, Retaining Walls, etc.
DT - 127	Var. 1 or 3	Exterior and Interior Elevations, Room Finishing Schedule
DT - 128	Var. 1 or 2	Door and Window Schedules, Details, Hardwares
DT - 129	Var. 1 or 3	Cabinet Work, Hardwares, Fireplace, Fencing, Gates, Miscellaneous Details

*One credit for lecture only; full credits for lecture-laboratory.

IV. Working Drawings--Architectural Drafting:

(To be taken by student specializing in Architectural Drafting)

Course No.	Credits	Course Title
DT - 200	5	Architectural Working Drawing I
DT - 220	3	Building Services, Electrical, Plumbing, Ventilation, Vertical Transportation

V. Electives:

(Courses that could be taken by students to meet certification or degree requirements for Architectural Drafting specialization)

Course No.	Credits	Course Title
DT - 121	3	Construction Materials II
DT - 130	3	Surveying and Topographic Drafting I
DT - 201	5	Architectural Working Drawing II
DT - 202	5	Architectural Working Drawing III
DT - 205	4	Design and Planning
DT - 230	3	Surveying and Topographic Drafting II
DT - 250	3	Perspective Drawing
DT - 251	4	Presentation Drawing
DT - 252	3	Model Building
DT - 253	2	Building Specifications
DT - 258	Var. 1-4	Cooperative Work Experience
DT - 260	3	History of Architecture I
DT - 261	3	History of Architecture II
DT - 269	3	Architectural Math

Program requirements for students specializing in Architectural Drafting and campus options are outlined below:

Requirements	Credits and Campus Options	
	OPTION I	OPTION II
Basic Drafting	6	6
Specialized Drafting--Building	11	24
Working Drawing--Architectural Drafting	8	8
Architectural Drafting Electives	16	3
SUB TOTAL	41	41

The Certificate of Achievement would be awarded upon the successful completion of these 41 units of drafting courses, plus the individual campus' distribution requirements or electives, to equal at least a total of 47 units.

The Associate of Science degree would be awarded upon the successful completion of these 41 units, plus the individual campus' distribution requirements or electives, to equal at least a total of 60 units.

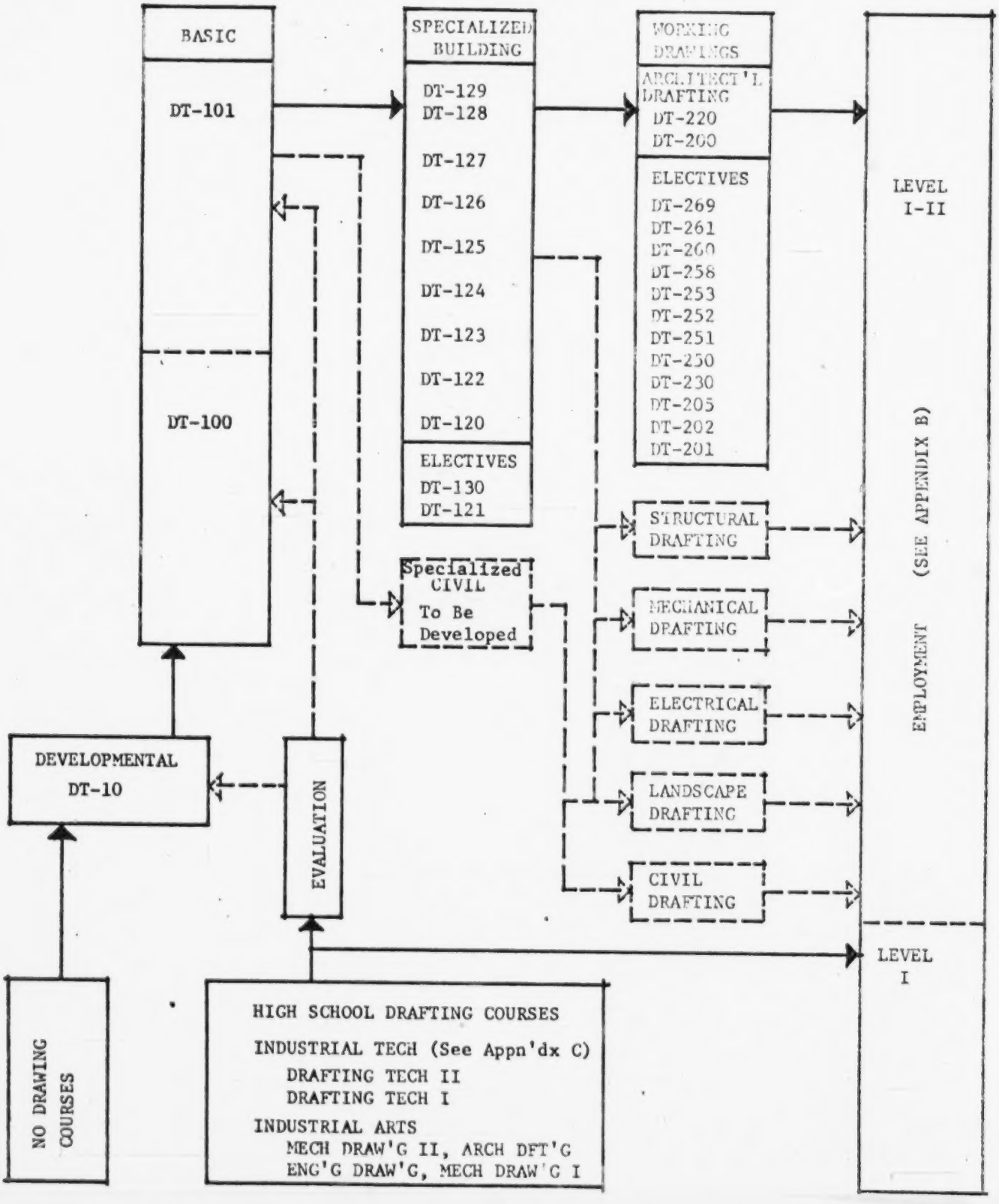
PROPOSED STUDENT FLOW CHART

Once articulation among the community colleges and between the community colleges and the secondary schools has been accomplished, individuals should be able to progress from formal education into employment with a greater amount of available options. The student flow chart of these options is depicted in Chart III. Solid arrows indicate tenable options in the first phase of articulation, and dotted arrows indicate those to be developed later.

Individuals with no high school drafting background enroll in the initial developmental course (DT 10) at one of the community colleges.

Successfully completing the developmental course, he then progresses through the basic drafting course and the specialized drafting courses and into an area of specialization before finding employment.

STUDENT FLOW CHART III



Students with high school drafting may seek employment in a Level I position, or, if they desire to upgrade their chances for successful placement, they may enroll in a community college. There, his grasp of basic principles would be evaluated, and he would be placed accordingly into the basic course (DT-100) or bypass that into DT-101. He would then progress through the series and finally to Level I or II employment.

Evaluation would be a comprehensive process involving at least three areas of concern:

1. the student's high school performance,
2. recommendations of high school instructor,
3. student performance on a paper and pencil pre-test which include architectural drawing problems.

For students intending to enter the community college drafting program at the basic level, the recommended background includes knowledge, skills, and attitudes that could have been attained either through formal course work or informal experiences. These are grouped below under cognitive, psychomotor, and affective domains.

I. Cognitive Domain

A. Communicative

1. Knowledge, understanding and application of drafting terminology.

a. The student will be able to read and write drafting terminology commonly found in basic drafting texts.

b. The student will be able to use correct drafting terminology to express and solve basic drafting problems.

B. Mathematical

1. Knowledge, understanding and application of arithmetic.

a. The student will be able to add, subtract, multiply,

and divide numerals and fractions, both common and decimal, to solve basic drafting problems.

2. Knowledge, understanding and application of measurement and calculation in drafting.

a. The student will be able to measure distances accurately.

b. The student will be able to find and read basic drafting reference tables.

C. Basic drafting methods

1. Knowledge and understanding of materials and methods of construction.

a. The student will be able to identify common construction materials and explain how they are used.

II. Psychomotor Domain

A. Manipulative

1. The student will be able to use common drafting tools, machines, supplies and techniques to solve basic drafting problems.

III. Affective Domain

A. Work Orientations

1. The student will be able to show a cooperative spirit with co-workers, be willing to work long hours at a drafting table, pay attention to details, follow directions and accept responsibility.

ADDITIONAL RECOMMENDATIONS

To fully realize a state-wide articulated plan, steps should be taken to implement each of the following:

1. Establish a centralized center for the development and dissemination of appropriate instructional and guidance materials.
2. Establish an association composed of drafting instructors from the Department of Education, University of Hawaii Community Colleges and University of Hawaii at Manoa for the promotion, coordination, and improvement of the drafting program.
3. Provide additional courses and workshops for in-service credits along the lines described below:

SUGGESTED CONTENT FOR IN-SERVICE WORKSHOPS

I. Basic communication skills in college.

- a. Reading assignments.
- b. Written presentation.
- c. Oral presentation and description.
- d. Translation (Translating written words in graphic pictorial language.)
- e. Preparing lecture notes.
- f. Ability to follow verbal and written directions.
- g. Research procedures.

II. Basic manipulative skills.

- a. Line quality.
- b. Lettering skills.
- c. Use of basic drawing instruments.
- d. Construction of geometrical shapes.
- e. Dividing a line into segments.
- f. Use of scales and angle-measuring instruments.

III. Basic terminologies, symbols and conventions.

- a. Parts of a house.
- b. Representative symbols.
  1. Material
  2. Electrical
  3. Plumbing
- c. Conventions
  1. Method of representing:
     (a) Single wall (wood)
     (b) Double wall (wood)
     (c) Masonry wall
     (d) Steel
     (e) Windows
     (f) Doors
     (g) Various fixtures
     (h) Cabinets
     (i) Closets and storage closets, etc.

IV. Awareness of restriction in design by State Board of Health, Housing Code, Uniform Building Code.

V. Services of various governmental agencies and confronting to their rules and codes to obtain a building permit.

4. Form student associations to cultivate enthusiasm for and discussion on drafting techniques and problems.

5. Promote standardized college schedule, including interim periods.

6. Provide courses and workshops for counseling and guidance personnel to articulate their efforts.

EVALUATION OF EFFECTIVENESS OF THE ARTICULATION AGREEMENT IN THE DRAFTING PROGRAM

The following evaluative criteria and guidelines are recommended for determining the effectiveness of the proposed articulation agreement for the drafting program:

1. The increase in percent of community college entering students who have taken one or more drafting courses in high school. At the present time only 65 percent of the students who enroll in the drafting program at the community colleges have had drafting experiences at the secondary level.

2. The increase in the number of drafting classes at the secondary level and community colleges.

3. The increase in percent of secondary students who take at least one basic course in drafting while in high school. At the present time only 5 percent of the students in grades 9-12 are enrolled in drafting classes.

4. The increase in percent of high school drafting students who enroll in drafting programs at a community college.

5. Increase in the percent of high school graduates who enroll in the drafting program at the community colleges and who qualify for the basic core course, DT 110. (See Student Flow Chart III.)

R E C O M M E N D A T I O N S

FOOD SERVICE EDUCATION TEAM

FOOD SERVICE COMMITTEE RECOMMENDATIONS FOR ARTICULATION AMONG EDUCATIONAL INSTITUTIONS IN THE STATE OF HAWAII

A. Secondary Schools

The Food Service Committee Recommends that:

1. students who have been accepted for enrollment in a community college Food Service Program and have successfully completed Food Service I at the secondary level with a grade of "C" or better be awarded credit for the following community college courses:

   FSER 120 A and B Introduction to Food Service

   FSER 123 A Basic Nutrition

2. students who have been accepted for enrollment in a community college Food Service Program and have successfully completed Food Service II at the secondary level with a grade of "C" or better be given the option to apply for credit at a community college in FSER 140 courses including any or all of the following: FSER 140 Fundamentals of Cookery, FSER 140A Fundamentals of Baking, FSER 140B Cold Food Pantry, FSER 140C Fundamentals of Cooking, and FSER 140D Short Order Cooking.

3. students completing one year of cooperative education experience at the secondary level with a verification letter from the employer will be given the option to apply for credits in FSER 140 including any or all of the following courses at the community colleges: FSER 140A Fundamentals of Cookery, FSER 140A Fundamentals of Baking, FSER 140B Cold Food Pantry, FSER 140C Fundamentals of Cooking, and FSER 140D Short Order Cooking.

B. Community Colleges

The Food Service Committee Recommends that:

1. community colleges adopt the standardized course titles, numbers, and objectives.

2. students be permitted to transfer from one community college to another and be credited with number of credits allowed at the receiving institution.

C. General

1. A State-wide Food Service Articulation Committee be established to meet semi-annually. The purpose is to update, revise and modify programs as needs arise and make recommendations to appropriate administrations for consideration and approval.

2. Representatives of food service programs be provided resourses to attend state, national, and international conferences to strengthen and enrich state-wide programs.

3. A central reference center be designated for the purpose of sharing available instructional resources.

PROPOSED COMMUNITY COLLEGE COURSE DESCRIPTIONS

INTRODUCTION

FSER 120 Introduction to Food Service (var.)

An introductory course in commercial food service, including discussions of career opportunities in the industry and essential information about foods, sanitation, safety, terminology, and work habits.

FSER 120A Career Opportunities in the Food Service Industry and Job Descriptions (var.)

Individualized, self-study module with open lab hours in learning center. A study of career opportunities in food service management in hotels, restaurants, cafeterias, schools, clubs, and hospitals. Orientation to basic job descriptions and job requirements.

FSER 120B Safety and Sanitation: Food Terminology (var.)

Individualized, self-study module with open lab hours in learning center. A study of sanitation and personal hygiene, as applied to safe food handling practices. Includes fundamental bacteriology, study of food borne diseases and preventive measures, culinary terms and trade vocabulary, safety precautions and accident prevention.

FSER 123 Nutrition and Menu Planning (var.)

Principles of nutrition as related to food service and to the maintenance of good health. Preparation of well-balanced menus, which consider the format, cost, procurement, production, merchandising, and the use of essential nutrients.

FSER 123A Basic Nutrition (var.)

Individualized, self-study module with open lab hours in learning center. Basic principles of nutrition, study of the basic food groups and their contribution to health.

FSER 123B Restaurant Menu Planning (var.)

Individualized, self-study module with open lab hours in learning center. Study of the factors of a well-planned menu, including design, format, cost, procurement, personnel, equipment, clientele, and merchandising.

PURCHASING

FSER 131 Storeroom Operations and Stewarding Procedures (var.)

Study of the organization and operation of a central storeroom. Provides experience in ordering, receiving, pricing, storing, distributing, and controlling the flow of food, supplies, and equipment. Also covers the organization and operation of stewarding department, including dish-machine operation and general maintenance of equipment.
A Certificate of Completion will be awarded when a student completes this course with a minimum grade of "C."

FSER 231 Purchasing and Cost Control (var.)

Pre-requisite: FSER 121 or concurrent registration.
Study of food control systems used by hotels, food service companies, schools, and restaurants. Principles of and practice in purchasing foods and supplies. Experience in preparing daily and monthly cost reports and sales analysis.

DINING ROOM

FSER 135 Dining Room Service (var.)

Study and practice of proper serving etiquette for various types of table service, including experience in a public dining room.
A Certificate of Completion will be awarded when student completes this course with a minimum grade of "C."

FSER 235 Dining Room Supervision (var.)

Pre-requisite: FSER 135 or consent of instructor.
Study of problems and practice in the operation and organization of commerical dining room and banquet facilities; emphasis on customer relations, training, and supervising techniques.

PROFESSIONAL COOKING

FSER 140 Fundamentals of Cookery (var.)

Principles and skills in baking and cold foods production. Includes practice in preparing salads, sandwiches, appetizers, and desserts. Covers the techniques of using standardized recipes and the handling of commercial tools, equipment, and materials.

FSER 140A Fundamentals of Baking (var.)

Study of the fundamentals and principles of baking, including descriptions of igredients, scaling, and formulas, Students produce yeast products, quick breads, cakes, cookies, pies, and pastries.

FSER 140B Cold Food Pantry (var.)

Study and practice in preparation of salads, salad dressings, sandwiches, canapes, hors d'oeuvers, cold appetizers, and beverages.
A Certificate of Completion will be awarded when student completes this course with a minimum grade of "C."

FSER 140C Fundamentals of Cooking (var.)

Study and practice in preparation of soups, sauces, meat cookery, vegetable, and egg cookery; standardized recipes and portion control.

FSER 140D Short Order Cooking (var.)

A manipulative skills course in preparing and serving foods that can be prepared quickly and are common bill of fare in coffee shops, drive-ins, and cafes; includes breakfast cookery.
A Certificate of Completion will be awarded when student completes this course with a minimum grade of "C."

ADVANCED PROFESSIONAL COOKING

FSER 240 Culinary Art in Food Preparation (var.)

Pre-requisite: FSER 140 or consent of instructor.
Principles and skills in quality food preparation and quantity food production. Deals especially with foods commonly served by hotels and speciality restaurants. Provides culinary experience at various kitchen stations.

FSER 240A Meat, Fish, and Poultry Analysis (var.)

Definition, derivation, and identification of meat and meat products, including poultry and fish. Lectures, demonstrations, and practice in fabricating meats for professional kitchens.

FSER 240B Soups and Sauces: Basic and Advanced (var.)

Study and practice to develop skills and knowledge required of a hotel sauce cook for the preparation of basic and advanced soups and sauces.

FSER 240C Buffet Presentation (var.)

Preparation of hot and cold hors d'oeuvres, aspics, chaud-froids, mousses, buffet centerpieces, and ice carving. Studies are oriented to the aspects of garde manger work and include some international cuisines.

FSER 240D Asian Cookery (var.)

Lectures, demonstrations, and practice in Cantonese, Mandarin, Japanese, Korean, and other Pacific and Asian cuisines. Instruction in the use of special cooking equipment.

FOOD SERVICE MANAGEMENT

FSER 250A Equipment Layout and Design (var.)

Pre-requisites: FSER 240 and 241 or consent of instructor. Principles of space arrangement and work simplification. Study of planning, selecting, maintaining, and locating commercial equipment and facilities for various types of food service operations. Schematic drawings to show efficient food preparation and service layouts.

FSER 250B Food Service Management (var.)

Pre-requisites: FSER 135 and 240 or consent of instructor. Through case studies, analysis of management functions in commercial and institutional food and beverage production and service. Includes a study of production planning, kitchen organization, merchandising, and personnel and labor relations.

FSER 251 Food Service Internship and Seminar (var.)

Pre-requisite: Consent of instructor.
Supervised on-the-job food service experience in hotels, restaurants, public schools, clubs, and hospitals. Regular appraisal of learning progess.

FSER 199 Specialized Group Study (var.)

FSER 299 Individual Study (var.)

APPENDIX I

EVALUATION

At the concluding session of the EPDA Institute for Advanced Study in Vocational-Technical Education, a confidential questionnaire was distributed to a sampling of 29 of the 62 participants, 46.7% of the total number of participants. (See Exhibit A for a sample of the questionnaire). The following evaluation is drawn from data provided by the questionnaire:

1) Those attending the articulation meetings represented a broad cross-section of the education system in the State of Hawaii.

"Present Employer"	Number	Percentage
Community College	15	51.7%
Public High School	7	24.1%
DOE-District Level	3	10.3%
DOE-State Level	2	6.9%
Private High School	1	3.4%
University of Hawaii-Manoa	1	3.4%

2) Those attending represented predominantly teachers, but also included a satisfactory proportion of administrators at two levels.

"Primary Duty"	Number	Percentage
Teaching	21	72.4%
Administration	5	17.2%
Dept./Division Chairman	3	10.3%

3) Those attending represented the various islands in roughly the same proportion as population of the State.

"Island Where Employed"	Number	Percentage
Oahu	17	58.6%
Hawaii	6	20.7%
Maui	3	10.3%
Kauai	3	10.3%

4) The vocational fields of the participants were well distributed among those areas involved in the articulation.

"Primary Vocational Field of Interest"	Number	Percentage
Business Occupations	6	20.0%
Technical Graphics Occupations	10	33.0%
Mechanical Occupations	8	27.0%
Food Services Occupations	6	20.0%

5) The articulation institute provided increased experience in articulation for the almost 90% of the participants with only some or no prior experience.

"Past Experiences in Formal Articulation Prior to this Institute"

	Number	Percentage
Little or no experience	10	34.5%
Some experience	16	55.2%
Much experience	3	10.3%

6) Participants represented a broad range of years of experience at their present positions.

"Years spent at your present duties"

Range	- 1 to 23 years
Mean or Average	- 6.4 years
Median	- 5.0 years
Mode	- 3.0 years

7) It would be fair to expect that articulation is improved to the extend that people in different areas and at different levels get to know each other better.

The questionnaire asked the participants to think of the four horizontal and vertical articulation groups which functioned at the meetings and to estimate the number of persons in each group that they "knew well," "knew casually," and "did not know" prior to and at the end of the Institute. The number of participants in each group "known well" increased markedly while the number "not known" almost vanished.

Geographical Group	Number "knew well" increased from 99 to 147. Number "not known" decreased from 28 to 4.
Vocational Group	Number "knew well" increased from 127 to 142. Number "not known" decreased from 71 to 4.
High School-Community College (Vertical) Group	Number "knew well" increased from 87 to 103. Number "not known" decreased from 22 to 0.
Teaching-Administration (Vertical) Group	Number "knew well" increased from 38 to 59. Number "not known" decreased from 11 to 0.

Goals of the Institute: Probably the most significant data obtained from the questionnaires related to the asking of each respondent to evaluate the goals of the Institute. Some of the goals had been explicitly stated at the beginning

of the Institute, others were taken from implicit statements which the evaluator drew from materials of the Institute. Respondents were asked to circle their evaluation of the achievement of each goal on a 5-point scale in which 1="poor," 2="fair," 3="average," 4="good," and 5=excellent." Of nine goals presented to the respondants, only two show definite signs of not having been fulfilled adequately in the Institute. The following is a summary of the results:

	Mode	Median	Mean	Overall Rating
Goal #1 - ". . . the updating of your knowledge of national, regional, and local occupational programs and trends."	4.0	3.7	3.5	Above Average
Goal #2 - ". . . meeting and sharing program content in your area.	5.0	4.3	4.2	Good
Goal #3 - ". . . to prepare written articulation agreements between the community colleges and the State Department of Education."	5.0	4.4	4.3	Very Good
Goal #4 - ". . . to encourage intra-institutional articulation."	4.0	3.6	3.1	Average
Goal #5 - ". . . to encourage inter-institutional articulation."	5.0	4.3	4.3	Very Good
Goal #6 - ". . . to encourage vertical articulation."	5.0	4.2	4.1	Good
Goal #7 - ". . . to encourage horizontal articulation."	4.0	4.4	4.4	Very Good
Goal #8 - ". . . to encourage appropriate involvement of personnel . . . those necessary to effective articulation."	5.0	3.8	3.7	Above Average
Goal #9 - ". . . to encourage the ratification and implementation of agreements of articulation."	4.0	4.0	3.8	Above Average

In evaluating the above results, it is fair to say that the Institute achieved a high degree of success in reaching the listed goals. In planning for future institutes, the planners should look to improve goals #1 and #4. In response to goal #3, ten of the twenty-nine respondents marked that the

time allotted to the achievement of this goal was "too brief;" this factor should also be considered in future planning. Goals #4, and #8 had relatively large numbers of respondents giving those goals "poor" or "fair" ratings, although the majority of respondents graded them higher; some thought should be given to possible discovering why so many were negative regarding those goals; (#4 received a "poor" rating from eight persons, and #8 received a "fair" rating from six persons).

In addition, respondents were asked to rate on the 5-point scale "the clarity with which the objectives and goals were originally presented to the Institute. . . . How well did you understand the tasks to be accomplished?" This question received a mean score of only 3.1, a median score of 3.3, and a modal score of 3.5. This result is not surprising when it is considered that a number of the goals were taken from implicit statements about the Institute. It is fair to say, however, that the goals and objectives of the Institute should have been more clearly given to the participants in advance.

Rating of Institute Activities: Respondents were asked to rate eight of the activities of the Institute as to the degree to which the activity was "interesting and helpful to you in your work." The participants were requested to rate each activity as "very helpful," "helpful" or "not very helpful." The results below are ranked in order of helpfulness.

	Percentage Marking		
	Very Helpful	Helpful	Not very Helpful
Group discussions within your own area	88%	11%	0%
Informal discussions	68%	29%	4%
Preparing articulation agreements	59%	38%	3%
Resolving disagreements	54%	43%	4%
Group discussions across area boundaries	44%	37%	19%

	Percentage Marking		
	Very Helpful	Helpful	Not Very Helpful
Presentation by students	37%	37%	26%
Island-area workshops	33%	48%	19%
Presentations by speakers	4%	54%	43%

It is difficult to determine from the above whether any activities should be excluded from future activities, but certainly the latter be considered as a weak one; and the question raised as to whether outside speakers are needed, or whether their presentations were weak. The presentations by students and the island-area workshops need better planning so as not to be negative experiences for twenty per cent of the attendants.

In summary, the questionnaire administered to 29 of the 62 participants reavealed that the Institute involved the participation of a broad cross-section of the education system of the State of Hawaii; markedly increased the number of educators in different geographical areas and levels of responsibility that now know each other well for purposes of further articulation; and, most important, that participants felt the Institute achieved a high degree of success in fulfilling the stated and implicit goals of the Institute.

EVALUATION OF EPDA INSTITUTE FOR ADVANCED STUDY
IN VOCATIONAL-TECHNICAL EDUCATION:

"COLLABORATIVE ROLES AND FUNCTIONS OF OCCUPATIONAL EDUCATIONAL PROGRAMS"
Hawaii - 1972-1973

Please check the appropriate places for the following:

I. BACKGROUND INFORMATION

1. Present Employer (Check one, ✓)
   _____1. Private High School
   _____2. Public High School
   _____3. Community College
   _____4. University of Hawaii-Manoa
   _____5. DOE-State level
   _____6. DOE-District level

2. Primary Duty: (check one)
   _____1. Teaching
   _____2. Dept./Div. Chairman
   _____3. Administration

3. Primary Vocational Field of Interest:
   _____1. Business Occupations
   _____2. Technical Graphics Occupations
   _____3. Mechanical Occupations
   _____4. Food Services Occupations
   _____5. None of the above

4. Island Where You Work.
   _____1. Oahu
   _____2. Hawaii
   _____3. Maui
   _____4. Kauai

5. Past Experiences in Formal Articulation prior to this Institute.
   _____1. Much experience
   _____2. Some experience
   _____3. Little or no experience

6. Please indicate the number of years spent at your present duties (rounded off)
   _____year(s)

7. Many of the Institute activities were conducted in groups. Please estimate the number of members in each group below that you "knew well," "knew casually" and "did not know" prior to the Institute and now. (For example, in your vocational group of 15 persons, you may have known 5 of the group "well" before the Institute and know 8 "well" now.)

Geographical Group

Prior	Now
_____1 Knew Well.	_____
_____2. Knew Casually . .	_____
_____3. Did not know . .	_____

Vocational Group

Prior	Now
_____1. Knew Well	_____
_____2. Knew Casually	_____
_____3. Did not know	_____

High School-Community College Levels Group

Prior	Now
_____1. Knew Well.	_____
_____2. Knew Casually. . .	_____
_____3. Did not know . . .	_____

Teaching-Administration Group

Prior	Now
_____1 Knew Well	_____
_____2. Knew Casually	_____
_____3. Did not know.	_____

The information requested on this evaluation is strictly CONFIDENTIAL. You are not asked to sign the form. Please continue on the next page.

II. EVALUATION OF THE INSTITUTE

	Excellent	Good	Average	Fair	Poor
	↓	↓	↓	↓	↓
The stated goals and purposes of the Institute are listed below. Please circle the appropriate number on the right to indicate your evaluation of the Institute's achievement of each goal.	5	4	3	2	1
(sample)					
——→	5	4	(3)	2	1
Also, answer the specific questions under each goal by checking the appropriate line.					
1. GOAL " . . . the updating of your knowledge of national, regional, and local occupational programs and trends." ——→	5	4	3	2	1
a. Time spent on this goal was: (check one below)					
_____1. too lengthy					
_____2. about right					
_____3. too brief					
b. Information shared under this goal was:					
_____1. too advanced					
_____2. average					
_____3. too elementary					
2. GOAL " . . . meeting and sharing program content in your area." ——→	5	4	3	2	1
a. Time spent on this goal was: (check one)					
_____1. too lengthy					
_____2. about right					
_____3. too brief					
b. Information shared under this goal was					
_____1. too advanced					
_____2. average					
_____3. too elementary					
3. GOAL: "to prepare written articulation agreements between the community colleges and the State Department of Education." ——→	5	4	3	2	1
a. Time spent on this goal was: (check one)					
_____1. too lengthy					
_____2. about right					
_____3. too brief					
b. Information shared under this goal was:					
_____1. too advanced					
_____2. average					
_____3. too elementary					

Please continue on the next page:

	Excellent	Good	Average	Fair	Poor
	5	4	3	2	1
4. GOAL: ". . . to encourage intra-institutional articulation." (e.g. between your department and another department within your school.)_____	5	4	3	2	1
5. GOAL: ". . . to encourage inter-institutional articulation." (e.g., between your high school or community college and another high school or community college.)_____	5	4	3	2	1
6. GOAL: ". . . to encourage vertical articulation." (e.g., all typing instructors from the high schools and community colleges meeting together.)_____	5	4	3	2	1
7. GOAL: ". . . to encourage horizontal articulation." (e.g., all drafting instructors from all the community colleges meeting together.)_____	5	4	3	2	1
8. GOAL: ". . . to encourage the appropriate involvement of personnel." (e.g. teachers, department chairmen, principals, and provosts--those necessary to effective articulation.)_____	5	4	3	2	1
9. GOAL: ". . . to encourage the ratification and implementation of agreements of articulation."_____	5	4	3	2	1
10. The clarity with which the objectives and goals above were originally presented to the Institute. How well did you understand the task to be accomplished?_____	5	4	3	2	1

11. Please rate the following Institute activities on the extent to which they were interesting and helpful to you in your work. Use the rating of 3=very helpful 2=helpful 1=not very helpful

____presentations by speakers
____group discussions within your own area
____island workshops
____informal discussions
_____ presentation by students
_____ group discussions across area boundaries
_____ preparing articulation agreement(s)
_____ resolving disagreements

12. As a result of your participation in this Institute, have you modified your present work?

YES___ NO___

If YES, please describe the nature of the most important of such modifications and the activities which will be affected.

13. As a result of your contacts with the participants and leaders at the Institute, have you established a means of exchanging information with any of them?

YES___ NO___

If YES, what types of information are being exchanged and how does it contribute to your work?

14. In your opinion, what was the major strength of the Institute?

15. In your opinion, what were the major weaknesses of the Institute?

16. What changes would you recommend for future institutes of a similar nature?

Mahalo!

ADDITIONAL ATTENDANTS

ISLAND OF HAWAII

HILO HIGH SCHOOL - 556 Waianuenue Avenue, Hilo, Hawaii 96720

Tom Hiramoto	Instructor, Drafting
Kenneth Iwanaka	Instructor, Business Education
Bob Kawachika	Instructor, Business Education
Al Manligirio	Counselor
Charlene Sohriakoff	Instructor, Business Education
Joe Tanaka	Counselor
Jack Tullis	Instructor, Auto Mechanics
Ted Ura	Counselor
John Yao	Instructor, Business Education

HONOKAA HIGH SCHOOL - P. O. Box 237, Honokaa, Hilo 96727

Matilda Moeller	Instructor, Business Education

KOHALA HIGH SCHOOL - P. O. Box 278, Kohala, Hilo 96755

Henry AhSam	Instructor, Auto Mechanics

KA'U HIGH & PAHALA ELEMENTARY - P. O. Box 218, Pahala, Hilo 96777

Art Nakatani	Instructor, Auto Mechanics

KONAWAENA HIGH SCHOOL - P. O. Box 698 Kealakekua, Kona 96750

Ichiro Shikada	Vice Principal

COMMUNITY COLLEGE

HAWAII COMMUNITY COLLEGE - 1175 Manono Street, Hilo, Hawaii 96720

Anthony Costa	Division Chairman, Trades and Industry
William Grimstad	Instructor, Restaurant/Food Service
Mitsugu Sumada	Provost

DISTRICT SUPERINTENDENT

HAWAII DISTRICT SUPERINTENDENT - 75 Aupuni Street, Hilo, Hawaii 96720

Harry Chuck	District Superintendent

ISLAND OF KAUAI

KAUAI HIGH SCHOOL - P. O. Box 511, Lihue, Kauai 96766

Akio Kubota	Instructor, Drafting
Ivan Longmore	Instructor, Auto Mechanics

WAIMEA HIGH SCHOOL - P. O. Box 396, Waimea, Kauai 96796

Elizabeth Ikehara	Instructor, Business Education

COMMUNITY COLLEGE

KAUAI COMMUNITY COLLEGE - RR #1, Box 216, Lihue, Kauai 96766

Guy Fujiuchi	Dean of Student Services
William Koide	Instructor, Business Education
Edward White	Provost

DISTRICT SUPERINTENDENT

KAUAI DISTRICT SUPERINTENDENT - 3060 Eiwa Street, Lihue, Kauai 96766

Barton Nagata	District Superintendent

BUSINESS FIRMS

KAUAI BUILDERS, LTD - 3988 Halau, Lihue, Kauai 96766

Janet Kimura	Designer

K P AND I INC - Lihue, Kauai 96766

Masao Kutaka	Professional Engineer

CONSTRUCTION MATERIALS, HAWAII - Hanapepe, Kauai 96716

Richard Nii	Home Planning Director

ISLAND OF LANAI

LANAI HIGH SCHOOL - P. O. Box 757, Lanai City, Lanai, Hawaii 96763

Charlotte Baba	Instructor, Home Economics
Frank Chester	Instructor, Drafting
Earle Hotta	Counselor
Larry Libres	Vice-Principal
Hideo Niibu	Instructor, Business Education
Howard Sakamoto	Principal

ISLAND OF MAUI

BALDWIN HIGH SCHOOL - 1650 Kaahumanu Avenue, Wailuku, Maui 96793

Jane Fukuoka	Counselor
Jon Garcia	Instructor, Business Education
Donald Gard	Counselor
Jacqueline Hashimoto	Instructor, Home Economics
Mary Izon	Instructor, Business Education
Doris Kawahara	Instructor, Business Education
Hideo Kimura	Counselor
Misao Ota	Instructor, Home Economics
Harry Shimada	Instructor, Auto Mechanics
Robert Takahashi	Counselor
Bernard Tokunaga	Principal

HANA HIGH SCHOOL - P. O. 128, Hana, Maui 96713

Wallace Fujii	Principal
Susan Taniguchi	Instructor, Business Education
Charles Toma	Instructor, Drafting
Lynn Toma	Instructor, Home Economics

LAHAINALUNA HIGH SCHOOL - RR #1, Lahaina, Maui 96761

Esther Hendershot	Instructor, Home Economics
James Matsui	Instructor, Drafting
Ralph Murakami	Principal
Wallace Nakamura	Instructor, Business Education
Robert Sakado	Instructor, Drafting
Marian Snyder	Counselor
Constantine Tgiros	Counselor

MAUI HIGH SCHOOL - 660 South Lono Avenue, Kahului, Maui 96732

Stella Anzai	Instructor, Home Economics
Paul Fujishiro	Instructor, Auto Mechanics
Evalyn Griffith	Counselor
Shufflo Honda	Instructor, Business Education
Betty Nomura	Instructor, Home Economics
Richard Omuro	Counselor
Ransom Wong	Counselor
Calvin Yamamoto	Principal
George Yanagi	Instructor, Drafting
George Yoshimura	Counselor

PRIVATE

SAINT ANTHONY HIGH SCHOOL - 1618 East Main Street, Wailuku, Maui 96793

Sister Beatrice Carvalho	Counselor
Brother Maurice Miller	Principal

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APPENDIX III

1972-73

EPDA Institute for Advanced Study
in Vocational-Technical Education

October 1, 1972 to June 30, 1973

COLLABORATIVE ROLES AND FUNCTIONS OF OCCUPATIONAL EDUCATION PROGRAMS

In Cooperation with the

Bureau of Education Personnel Development
Office of Education

Under Part F of the Education Professions Development Act
and
The Vocational Education Division, University of Hawaii

Department of Curriculum and Instruction
College of Education
University of Hawaii
Honolulu, Hawaii 96822

PURPOSE

The overall purpose of this institute is to provide opportunity for professional, administrative, and supervisory personnel to update their knowledge of national, regional, and local occupational programs and trends and to provide an opportunity for these participants to meet and share program content and to prepare written articulation agreements between the community colleges and the State Department of Education. The program intends to provide team activities, seminars, group and individual activities in four occupational areas (Food Services, Graphics, Mechanical and Business Occupations). Selected private institutions will also be involved.

PROGRAM OF STUDY

The program of study includes three major phases and three subphases:

Phase I will be an orientation and familiarization with selected occupational education programs. Model programs of articulation will be discussed and reviewed. Each participant will plan individually and in teams a program of activities. Phase IA will include individual preparation of the nature, content of the participants' occupational education curriculum in written form (e.g. his series of courses in typing).

Phase II will be a seminar and conference program to share documents prepared in Phase IA; to arrive at common goals and objectives for each course, and to formulate a written team recommendation for articulation. An orientation to select vocational-technical programs will also be included. Phase IIA will be a series of four workshops to review the written recommendations developed in Phase II. Interested persons from the community colleges and the Department of Education will be invited to attend these workshops. Also each workshop will review selected vocational-technical education programs.

Phase III will be a seminar and conference program to prepare final drafts of team recommendations in the form of an agreement, one for each area. Phase IIIA will be a program of information--dissemination.

ELIGIBILITY REQUIREMENTS

Participants will be selected from the Hawaii's community colleges and the State Department of Education. A total of 70 participants will be invited, 30 from neighboring islands and 40 from Oahu. They will be key personnel who will act as change agent multipliers when they return to their respective positions. All participants must meet the following requirements:

1. Must be an in-service instructor, supervisor, or administrator in vocational-technical education or related subject area.

2. Must bring his curriculum and course materials to the institute.

3. Must devote full-time to study during the period of the program.

4. Consideration will be given to the content and quality of the applicant's academic preparation, work experience and place of residence to obtain a broad geographic representation of participants.

5. Must agree to participate in pre- and post-institute conferences and sessions.

Preference will be given to those applicants who show the greatest promise of sharing the institute ideas with their associates and have leadership potential with their schools or agencies. The participants selected will be those who seem to best meet the above criteria. An attempt will be made to have as many institutions as possible represented in the institute.

SELECTION PROCEDURE

Applications will be solicited by invitation. Final selections will be made by a committee composed of the Director of the Institute, the project staff and a representative from the Hawaii State Department of Education, Vocational-Technical Education Branch.

ACADEMIC CREDIT

Four (4) semester hours of credit will granted to those individuals who request and satisfy the academic requirements of the University of Hawaii.

ACCOMMODATIONS

Housing accommodations will not be available. However, where possible, hotel accommodations for neighboring island participants will be planned.

STIPENDS

This institute has no stipends. However, Hawaii outer island participants shall be eligible to receive per diem of $25. Oahu island participants will receive per diem of $5. Transportation for outer-island participants will also be provided. No other allowances are provided.

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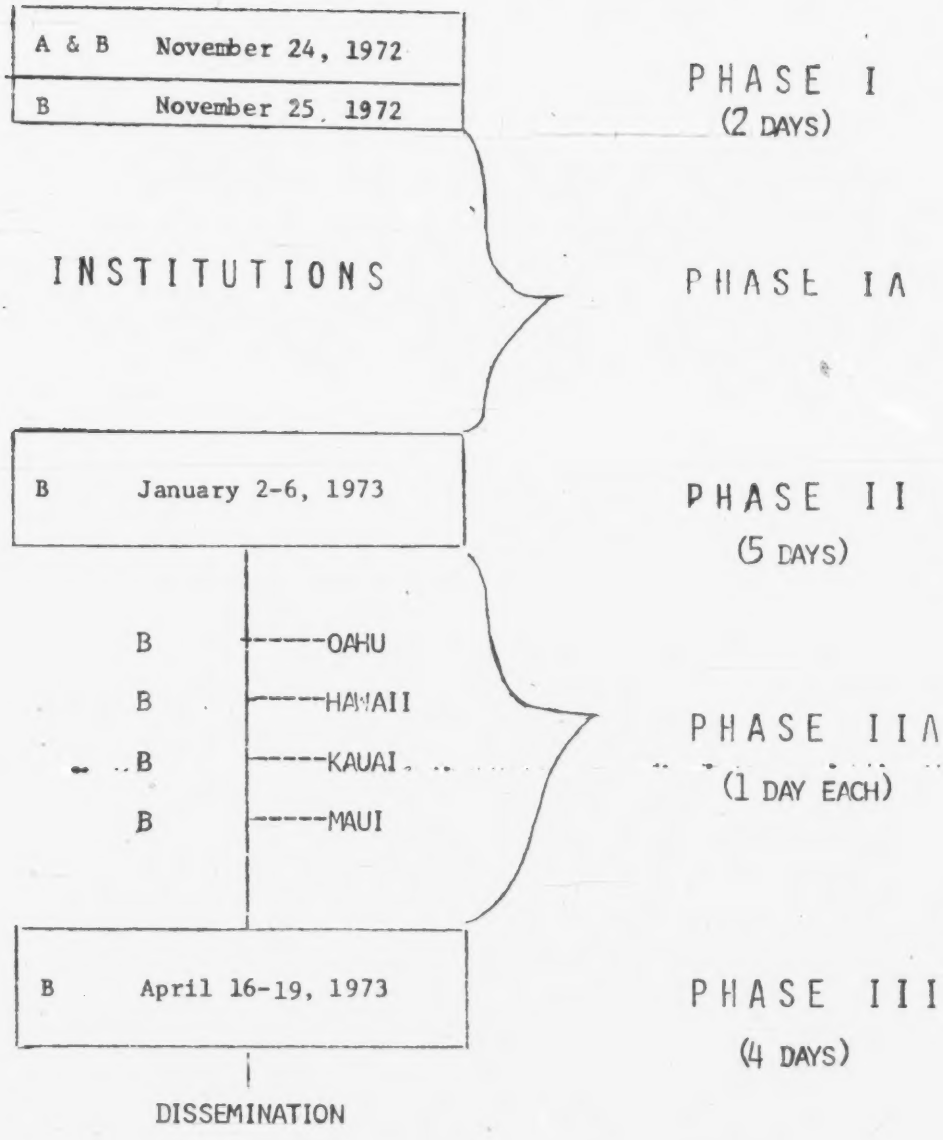
NON-DISCRIMINATION PROVISION

Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance." Therefore, EPDA programs must be operated in compliance with this law.


A & B November 24, 1972
B November 25, 1972
PHASE I
(2 DAYS)
INSTITUTIONS
PHASE IA
B January 2-6, 1973
PHASE II
(5 DAYS)
B OAHU
B HAWAII
B KAUAI
B MAUI
PHASE IIA
(1 DAY EACH)
B April 16-19, 1973
PHASE III
(4 DAYS)
DISSEMINATION

COLLABORATIVE ROLES AND FUNCTIONS

OF

OCCUPATIONAL EDUCATION PROGRAMS

REPORT

Submitted by Automotive-Mechanics Technology Team

June 1973

This project is funded under the United States Office of Education, Education Professions Development Act Part F, Section 553, and is under the sponsorship of the Office of the State Director for Vocational-Technical Education, University of Hawaii.

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INTRODUCTION

The overall purpose of this document is to state, in writing, the articulation agreements reached on automotive-mechanics technology between the community colleges and the secondary schools.

Since educational and career development is a continual process, educational programs in both the secondary schools and the community colleges need to be planned, conducted, and evaluated jointly. Articulation efforts should be a reality in order to provide the continuum of education necessary for each student to develop to his full potential without unnecessary duplication of instruction and delay in attaining his educational and career objectives.

The need for articulation between the community colleges and the high schools is becoming more evident every year. Through the EPDA Institute for Advanced Study in Vocational-Technical Education, articulation problems were discussed and examined, and recommendations were formulated.

These agreements are the culmination of this Institute and was accepted by those persons in automotive-mechanics technology from the various community colleges and the secondary schools.

GOALS AND OBJECTIVES

Goals

To provide a continuum of educational experiences for all automotive-mechanics students to enable them to achieve their vocational and educational aims in the most effective and efficient manner.

Objectives

1. To minimize duplication of content materials and to provide a progressive flow in the educational experiences of each automotive-mechanics student.
2. To standardize courses and credits for easy identification, thus facilitating the student transition from the secondary school to the community college as well as from one community college to another.
3. To increase the options available to the automotive student.
4. To establish a communication-link which will facilitate co-ordination among secondary schools, among community colleges, and between secondary schools and community colleges.
5. To promote the effective utilization of community, industrial, business, union, and government resources in the instructional program as well as in the establishment of advisory committees.
6. To provide for the continual upgrading of the quality of instruction through in-service workshops and college-level courses.

CURRENT STATUS

CURRENT STUDENT FLOW CHART IN THE SECONDARY SCHOOLS

Currently there are two existing programs in automotive-mechanics technology available to high school students: (1) The Industrial Arts Program which is primarily an exploratory program, and (2) The Industrial-Technical Program which is primarily for occupational training in automotive-mechanics (see Appendix I). The two programs exist at this time because the industrial-technical program has not been fully implemented in all schools of the state. Therefore, during this interim period schools without a vocational program in automotive-mechanics technology still offer a second year industrial arts automotive program. Once full implementation of the vocational programs is accomplished, the normal student flow in the schools will resemble the second horizontal progression shown in the chart below: Course No. 1102 will be phased out.

Authorized Courses by Grade Level and Code Number

10th grade	11th grade	12th grade
1101*	1101 1102* (interim)	1101 1102* (interim)
1101	1101 2001**	1101 2001 2002**

*Industrial Arts (exploratory)
**Industrial-Technical (vocational)

CURRENT STUDENT FLOW CHART IN THE COMMUNITY COLLEGES

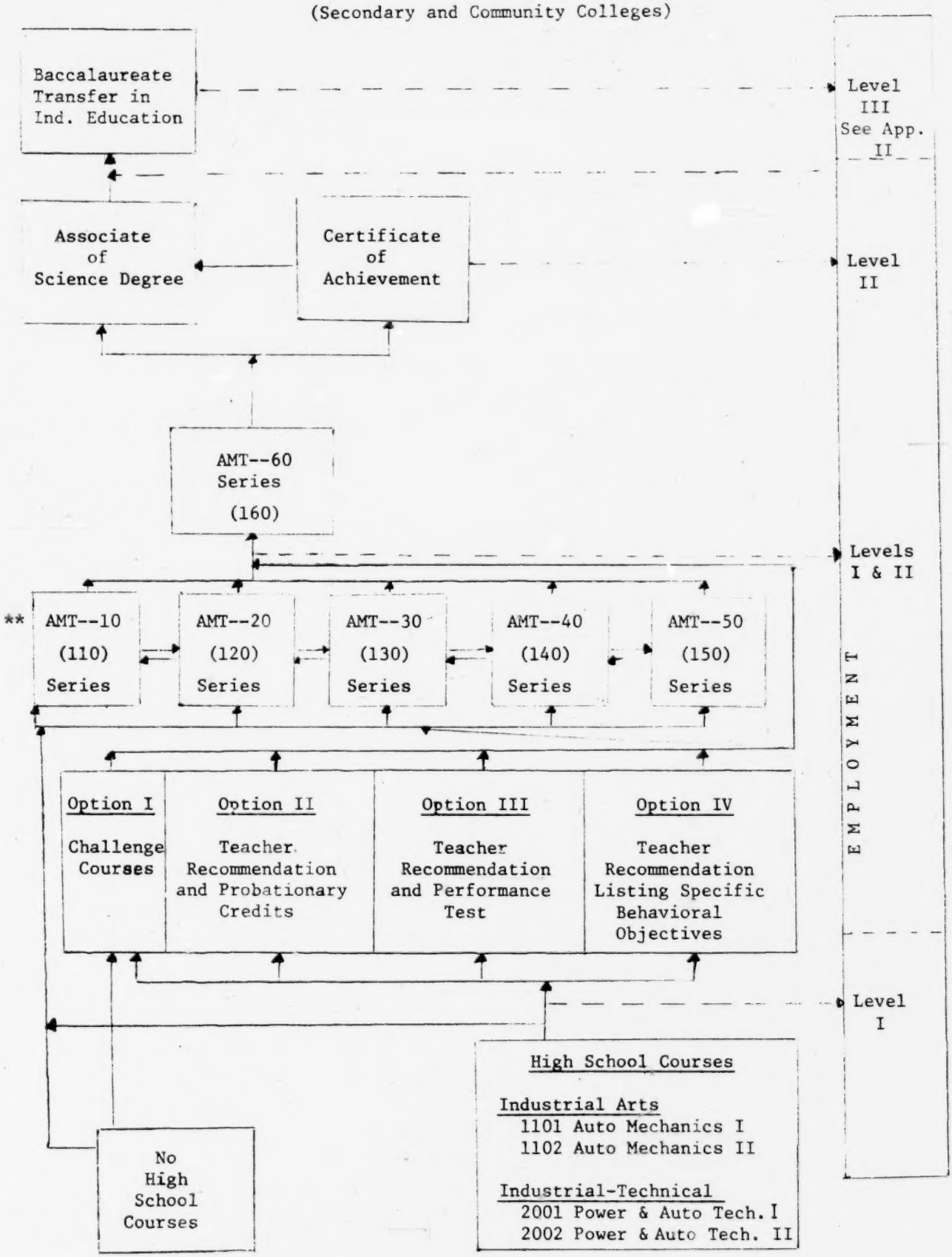
Students enter automotive-mechanics technology programs of the community colleges in modular courses that range in length from two to sixteen-week periods. Admission requirements are eighteen years of age or a high school graduate. Early admission of high school students may be arranged through counselors.

Modular courses provide flexibility in scheduling and options for students to enter and exit a program in accordance with their needs and interests.

Upon successful completion of a program for an Associate in Science degree, Certification of Achievement, or Certificate of Completion, a student may seek employment in the industry or pursue his education in a higher institution. The current student flow chart is incorporated in the Current and Proposed Student Flow Chart (Secondary and Community Colleges).

CURRENT AND PROPOSED STUDENT FLOW CHART

(Secondary and Community Colleges)



**The AMT - 10, 20, 30, 40 & 50 Series are not progressive

PROBLEMS BETWEEN AND RECOMMENDATIONS FOR SECONDARY SCHOOLS AND COMMUNITY COLLEGES

Problem I

The high school automotive programs are not sufficiently uniform in content coverage and emphasis, hence, minimizing the chances for maximum articulation between the community colleges and the secondary schools.

Facts

A. The existence of a state guide for automotive programs in our secondary schools does not in and of itself insure its use in a consistent manner. There are evidences of inconsistencies in program emphasis which are in part due to the fact that the state guide is not being used effectively. Among other reasons for program inconsistencies are the following: limitations of resources and facilities; unique local school conditions (e.g. limited enrollments); differences in student interests and exposures; differences in teacher talents, experiences, and judgments; inappropriate teacher placement; and lack of proper teacher orientation to the appropriate utilization of the guide.

Assumptions

A. Although it is expected that there will always be differences in the levels of performance among students completing the secondary programs, effective use of the guides by the teachers help to insure a minimum level of performance among students entering the community college programs from the secondary programs.

B. Teacher participation in the development of the guide as well as in an appropriate orientation program designed for its effective use will result in greater consistency in the level of expectations among the secondary school programs.

C. The constraints of limited resources and facilities are realities facing many schools; thus, the decision to offer a program in automotive mechanics should bring with it a commitment to a long-range program of facility and resource development as well as a set of realistic program expectations which recognize the existence of such constraints.

D. Limited enrollment in a school is expected to affect the scope of operations and also necessitate adaptations to guide specifications.

E. There is a range of talents and experiences among automotive-mechanics teachers as in other instructional areas; thus, it is expected that there will be differences in instructional strategies, effectiveness of instruction, and scope of coverage in the various schools' programs

It is Recommended:

A. That the Industrial-Technical Power and Automotive Technology course guide be developed so as to provide Industrial-Technical automotive teachers with a chance to react and agree on course content.

B. That the draft copy of the Industrial Education Instructional Guide for Power be refined by automotive teachers.

C. That the secondary schools automotive teachers adhere to the agreed course content, thereby carrying out maximum articulation with the community colleges and making adaptations necessitated by existing constraints such as limitations of facilities, resources, teacher experience, and student enrollment. Individualized instruction should be given wherever feasible.

D. That all the automotive-mechanics teachers and secondary principals be provided copies of the articulation agreement between the community colleges and the secondary schools.

Implementation

The Vocational-Technical Curricula section of the Department of Education should take the leadership and initiative in the development of both the above mention guides. The reaction and subsequent agreement should be completed by April 1974, and orientation meetings on the revisions by August 1974, to implement the program beginning September 1, 1974.

Starting September 1, 1974, all secondary, automotive-mechanics teachers will adhere to the agreed course content; but schools unable to comply completely, because of constraints described above, will make the necessary adaptation.

As soon as the agreement is accepted, copies will be sent to all secondary and community college automotive-mechanics teachers and secondary school principals.

Problem II

There is a need to review and agree upon the current course offerings in the community colleges and to disseminate this information to effect horizontal articulation.

Facts

A. Instructional units and courses are not in consonance with regard to titles, numbers, credit hours, and total hours.

B. There are differences in modular scheduling.

C. There are no provisions for course equivalency to effect a sound, inter-college transfer procedure for students.

Assumptions

A. There is a need to agree on the numbering, scheduling, and equating of courses for transfer of students.

C. There is a need for closer, horizontal communication.

Alternatives

A. Establish uniformity in course offerings with regard to titles, numbers, credit hours, and total hours guided by the AMA-AVA Council's Guide* and advisory committees' recommendations.

B. Provide more flexibility and options for students.

C. Establish an articulation committee of community college instructors to identify problems and recommend curriculum changes.

D. Distribute both course outlines with changes and student flow charts.

It is Recommended:

A. That an articulation committee of community college, automotive-mechanics technology instructors be established to review and agree upon uniformity of courses and to effect future changes.

B. That the automotive-mechanics programs in the community colleges provide more flexibility and student options with resources now available as per example:

   1. Leeward's modular scheduling that provides for courses in length from two to sixteen weeks.

---

*Automotive Manufacturers & American Vocational Association Industry Planning Council, Community College Guide for Associate Degree Programs in Auto and Truck Service/Management, Automotive Manufacturers Association, Michigan, 1960.

2. Honolulu's semi-modular scheduling that provides for courses in length from five to sixteen weeks, coupled with provisions for three entry course offerings every semester.

C. That through the established community college curriculum committee procedures, an agreement be adopted for course equivalency without regard, for the time being, to differences in credit hours or total contact hours.

D. That the community colleges continue to distribute course outlines and student flow charts to all community colleges.

Implementation

A community college automotive-mechanics and diesel-mechanics curriculum workshop was held from March 23-25, 1973 to initiate action on the recommendations. The workshop, funded by the EPDA Part F Institute, included all community college isntructors in the automotive- and diesel-mechanics technology programs. The proposal for state-wide uniformity of courses in the automotive- and diesel-mechanics technology shall be presented through established curriculum committee procedures and implemented in the Fall semester of 1974. (See Appendix III)

The effectiveness of the proposal shall be determined by the facility with which student inter-college transfer can be effected. The ultimate goal is that any student inter-college transfer can be effected without any loss of time and without anxiety to the student.

Problem III

Presently, there are no provisions for vertical articulation between the secondary schools and the community colleges.

Facts

A. The procedures for challenging courses (credit by examination) are not clearly established.

B. There is a duplication of training between the secondary schools and the community colleges.

C. There is a lack of an exchange of information between the secondary schools and the community colleges.

D. The secondary school, automotive teacher's recommendations for placement are not uniformly accepted.

Assumptions

A. A student's zest for learning is dampened when he is required to repeat a course or part of a course.

B. Any student may challenge a course for credit (credit by examination).

C. A secondary school teacher's recommendation for advanced placement of his former student is a valid recommendation.

It is Recommended:

A. That the following options be provided in the placement of secondary school students who enroll in the community college automotive-mechanics program.

   1. A student may challenge a community college course which is comprised of a final examination and a performance test.

   2. A student may submit for consideration both his secondary school teacher's detailed, written recommendation and his probationary credits.

   3. A student may submit for consideration both his secondary school teacher's detailed, written recommendation and a performance test at the community college.

   4. A student may submit for consideration, his secondary school teacher's written recommendation listing specific behavioral objectives.

B. That the community colleges and the district superintendents jointly exercise the leadership in the establishment of an official communication channel between the community colleges and the secondary schools.

C. That the community colleges distribute course outlines and student flow chart to the secondary schools of the Department of Education.

Implementation

The community colleges may presently exercise any option feasible and desirable. The total optional program shall be implemented by the Fall of 1975.

In order to continue to maintain a close liaison and cooperation, an official channel is necessary and vital. This channel, to be acted upon by the district superintendents and the community college officials, shall be established by January, 1974. Also, in keeping

with the official channel, all information on course outlines and student flow charts shall be distributed to all secondary school, automotive-mechanics instructors and principals to keep them apprised of the latest changes.

Problem IV

There is a lack of in-service training available to the automotive-mechanics technology teachers in the State of Hawaii.

Facts

A. There are presently no extended day classes tailored for automotive-mechanics technology instructors.

B. The industry-sponsored workshops are usually conducted during working hours.

C. The University of Hawaii does not have any courses in the automotive area.

Assumptions

An automotive instructor's technical knowledge needs to be constantly updated in order to keep up with the changes in the automotive industry.

Alternatives

A. Provide more community college short-term, intensive-training courses.

B. Request the community colleges or University of Hawaii to offer summer courses for credit.

It is Recommended:

A. That the community colleges or the University of Hawaii be requested to provide classes tailored for automotive-mechanics technology instructors. These courses would be for credit applicable for certification and reclassification.

B. That the State Director of Vocational Education request the industries to conduct the industry-sponsored workshop during non-working hours.

Implementation

The Department of Education, Vocational Education section shall conduct a survey of possible areas of interest for a workshop or for workshops. The results of the survey shall be submitted to the State Director of Vocational Education and to the Hawaii Automotive Teachers Association in January, 1974, for input and assistance on the possible workshops, courses, and dates. The date for the first summer workshop shall be in 1974.

The community colleges through the medium of the advisory council chairman shall make a request to the industries to hold workshops during non-working hours so that more community college and secondary school instructors may be able to attend. This request shall be made as soon as possible but no later than December, 1973.

Problem V

In order to establish uniform policies and/or to ensure total articulation of programs, there is a need to review the current status and organization of automotive advisory committees and their role.

Facts

A. Each community college currently has an appointed advisory committee.

B. There is some duplication of membership on the advisory committees, especially on Oahu.

C. All secondary schools do not have automotive advisory committees.

Assumptions

A. There is a need for a state-wide committee to recommend uniform policies.

B. For each alternative type of advisory committee (see list below) there are advantages and disadvantages.

C. There is a need to maximize articulation by combining secondary school and community college advisory committees in automotive-mechanics technology.

D. A state-wide advisory council will tend to overlook local problems and at the same time tend to lose its identity with the local community.

E. The establishment of a state-wide advisory council will necessitate more funds.

Alternatives

A. Establish a state-wide advisory committee for all community colleges and secondary schools.

B. Retain current, individual, community college advisory committees with the addition of secondary school representative(s) and utilize the Community College Guide for Associate Degree Programs in Auto and Truck Service/Management as a guide.

C. Establish a combination of Alternatives A and B above.

D. Establish a county-wide advisory committee for community colleges and secondary schools.

E. While retaining current practices on neighbor islands, establish an Oahu-wide advisory committee for community colleges and secondary schools.

F. Retain individual, community college advisory committees utilizing the Guide* and establish county-wide advisory committees, both committees should include high school representatives.

It is Recommended:

That current, individual, community college advisory committees in automotive-mechanics technology be retained, but that representative, secondary school instructors be added to this committee and that these committees utilize the Guide* as a guideline for anticipated revisions in the automotive-mechanics technology programs.

Implementation

The implementation plan of the above recommendation shall be initiated at the first meeting of the community college, advisory committee meeting. Through the District Office, secondary school instructors shall be requested to submit names and to select a representative or representatives from the list. Notification of selected representative or representatives will follow to all secondary schools and community colleges. The date of submission of names to the community college advisory committees shall be February 1, 1974.

---

*Community College Guide for Associate Degree Programs in Auto and Truck Service/Management was prepared for educators and industry as a special project of the Automobile Manufacturers, American Vocational Association, Industry Planning Council in cooperation with the Service Managers Committee of the Automobile Manufacturers Association, Inc. c 1969, p. 79.

APPENDICES

APPENDIX I*

INDUSTRIAL ARTS AND INDUSTRIAL-TECHNICAL COURSES

SPECIAL ELECTIVES, INDUSTRIAL ARTS

1101 AUTOMOTIVE MECHANICS I

Objectives

1. Develop introductory skills and knowledge in the selection, care and maintenance of an automobile.
2. Make simple diagnosis and repairs.

Description

An introductory course in the general construction, nomenclature, function, selection and care of the automobile. The student acquires an understanding of scientific and mechanical principles involved in the various components of the automobile through maintenance, adjustment, servicing, and repair activities.

1102 AUTOMOTIVE MECHANICS II

Objectives

1. Diagnose and repair the hydraulic, mechanical and electrical systems of motor vehicles.
2. Apply industrial safety practices in the repair and operation of motor vehicles.

Description

Major attention is given to the application of the principles involved in the operation and service of the automobile. Emphasis is placed on maintenance, adjustment, and repair of the automobile. Safe practices in the lab and on the highway are stressed.

SPECIAL ELECTIVES, INDUSTRIAL-TECHNICAL

2001 POWER AND AUTOMOTIVE TECHNOLOGY I

Objectives

1. Develop basic, entry-level skills in the power and automotive technology occupations.
2. Acquire and apply knowledge in the conversion and utilization of power.

Description

Organized experiences in the design and function of power systems employing various types of engines, mechanisms involved in the development, transmission, and control of power, with emphasis on dynamic analysis of specific units and their application.

2002 POWER AND AUTOMOTIVE TECHNOLOGY II

Objectives

1. Develop basic, entry-level skills to a higher degree of proficiency in the power and automotive technology occupations.

2. Acquire and apply knowledge in the repairing and maintaining of all types of automotive vehicles.

Description

Classroom and shop experiences which include training in all phases of automotive maintenance repair work on all types of automotive vehicles. Included is training in the use of technical manuals and a variety of hand and power tools. Instruction and practice are provided in the diagnosis of malfunctions, disassembly of units, parts inspection and repair or replacement of parts involving the engine, ignition system, carburetion, brakes, transmissions and alignment. Simulated class experiences and on-the-job experiences are included.

---

*Extracted from Authorized Courses and Code Numbers 1972-73, Office of Instructional Services, Department of Education, State of Hawaii, October, 1972.

APPENDIX II

JOB CLUSTERS FOR THREE MAJOR LEVELS OF AUTOMOTIVE-MECHANICS TECHNOLOGY

Level I	D.O.T. Code
Automobile Partsman	223.387
Automobile Mechanic Apprentice	620.281
Automobile Mechanic Helper	620.884
Mechanical Helper	630.884
Automobile Service Station Attendant	915.867
Lubrication Man	915.887
Level II	
Automobile Mechanic Foreman	620.131
Automobile Mechanic Chief	620.131
Automobile Mechanics	620.281
Automobile Tester	620.281
Mechanical Maintenance Man	620.281
Mechanic, Industry Truck	620.281
Engineer Equipment Man	620.281
Automotive Service Specialist	620.381
Automobile Radiator Man	620.381
Used Car Renovator	620.884
Level III	
Mechanical Engineer	007.081
Mechanic Engineer Technician	007.181
Automobile Engineer	007.081
Teacher, Technical	090.228
Teacher, Secondary	091.228
Instructor, Vocational	097.228

APPENDIX III

ADDENDUM TO AUTOMOTIVE MECHANICS TECHNOLOGY TEAM REPORT

A. Automotive Mechanics Technology

Actions taken on Recommendation made as a result of Problem II.

Problem II

There is a need to review and agree upon the current course offerings in the community colleges and to disseminate this information to effect horizontal articulation.

Program Description

The student who has successfully completed appropriate courses in the automotive-mechanics curriculum will be prepared for employment.

The program is designed to develop degrees of proficiency which will allow the student to:

1. be employed in industry.

2. advance to positions of increasing responsibility.

3. pursue advanced education at institutions of higher learning.

Major Courses

Major course descriptions for all programs are identified for a student to be awarded a Certificate of Completion, Certificate of Achievement, or an Associate in Science degree, as appropriate.

Related and general education course descriptions and requirements for programs of individual campuses are not detailed in this proposal for a state-wide automotive-mechanics technology curriculum. Reference is made to the individual college catalog for related and general education course requirements.

Major Course Numbering

AMT 110-119 - Introductory

AMT 120-129 - Engine and Related

AMT 130-139 - Fuel, Electrical, and Accessories

AMT 140-149 - Power Train

AMT 150-159 - Brake, Suspension, and Steering

AMT 160-169 - Diagnosis and Repair or Cooperative Training

Description of Courses

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Introduction to Automotive-Mechanics	AMT 110	1	20	HA, K, L, M

Course Description

This course is designed to provide the student with insight in the field of automotive-mechanics. Included is the proper use and care of hand tools, measuring tools, and equipment. Safety practices and the use of flat rate service manuals, parts manuals, and service bulletins are also covered.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Engines	AMT 120	7	180	HA, HO, L, M
Engines I	AMT 120A	3	75	K
Engines II	AMT 120B	4	105	K

Course Description

This course is designed to provide the student with related technical information in the operation, construction, design, service and repair of internal combustion gasoline engines. The course also provides practical skills necessary in disassembling, inspecting, precision measuring, repairing or replacing of parts, reassembling and final adjusting of engines.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Fuel Systems	AMT 130	3	75	HA, HO, K, L, M

Course Description

This course is designed to provide the student with related technical information in the characteristics, operation, construction, design, service and repair of fuel systems.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Electrical Systems	AMT 135	9	180	HA, HO, K, M

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Ignition Systems	AMT 135A	4	90	L
Electrical Systems	AMT 135B	5	90	L

Course Description

This course is designed to provide the student with related technical information in the operation, construction, design, service and repair of the starting, charging, ignition, lighting and accessory systems.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Automotive Air Conditioning	AMT 136	3	75	HO, K, L

Course Description

This course is designed to provide the student with related technical information in the operation, construction, design, service and repair of automotive air-conditioning systems.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Power Train	AMT 141	5	120	HA, HO, K, L, M

Course Description

This course is designed to provide the student with related technical information and manipulative skills in the maintenance and repair of clutches, standard transmissions, propeller shafts, universal joints, differentials and rear axles.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Automatic Transmission	AMT 146	5	105	HA, HO, K, L, M

Course Description

This course is designed to provide the student with related technical information in the operation, construction, design, service and repair of automatic transmissions.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Suspension and Steering	AMT 153	3	75	HA, HO, K, L, M
Wheel Balancing	AMT 153A	1	20	L

Course Description

This course is designed to provide the student with related technical information and manipulative skills in the maintenance and repair of standard and power steering gears, front and rear suspensions, wheel alignment and balancing.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Diagnosis and Repair	AMT 160	Var.	225 Min.	HA, HO, K, M
Diagnosis & Repair Power Train	AMT 160A	4	90	L

Course Description

This course is designed to provide the student with a realistic, on-the-job type of training. The student will be exposed to different types of live jobs to build his self-confidence, to improve his approach to trouble shooting and practice his skills of the trade with emphasis on accuracy, neatness, and speed.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Emission Control Systems	AMT 161	1	30	HA, HO, K, L, M

Course Description

This course is designed to provide the student with diagnosis and service procedures as they pertain to the function of vehicle emission control systems and devices. The course is tailored to provide advanced students and in-service mechanics with the working knowledge to properly diagnose trouble, service and repair crankcase, exhaust, and evaporative emission control systems.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Cooperative Education	AMT 168	Var.	Var.	HA, HO, K, L

Course Description

Cooperative vocational education in specific occupational areas provides students with practical work experiences to apply classroom knowledge and to develop job competency. Employment in the private and public sectors of the automotive industry and service organizations is correlated as closely as possible to the student's curriculum and individual interests.

B. Diesel Mechanics Technology

Program Description

The courses in the Diesel Mechanics curriculum will prepare students for employment in the heavy equipment, diesel, and related mechanical fields.

Major Courses

Major course descriptions for all programs are identified for a student to be awarded a Certificate of Completion, Certificate of Achievement, or an Associate in Science degree, as appropriate.

Related and general education course descriptions and requirements for programs of individual campuses are not detailed in this proposal for a state-wide automotive-mechanics technology curriculum. Reference is made to the individual college catalog for related and general education course requirements.

Major Course Numbering

The revised two-digit course numbering is followed by parenthetical, three-digit numbering to facilitate the transfer of credit for courses that meet the precise needs of the student's programs as designated by the appropriate Manoa department.

DM 20-29 (120-129) - Engine and Related

DM 30-39 (130-139) - Fuel, Electrical and Accessories

DM 40-49 (140-149) - Power Train

DM 50-59 (150-159) - Not Assigned

DM 60-69 (160-169) - Diagnosis, Cooperative Training, Advanced Work

Description of Courses

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Engines	DM 21 (121)	11	400	HA
		10	320	HO

Course Description

This course is designed to provide the student with the knowledge of engine design, service, construction, theory, and of operating principles of the internal combustion engine. The course will also provide the student with the necessary skills required to maintain, repair, and service the engine.

Course Objectives

The student will be able to:

1. use and understand manufacturer's specification charts.
2. estimate the appropriate labor and material costs for both minor repair and engine diagnosis and repair.
3. perform the required inspection, service, and repair of the engine and its components.
4. check and adjust valve clearance.
5. install injectors and set timing where applicable.
6. apply preventive maintenance performance tests and service as outlined by the manufacturer.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Fuel Injection and Electrical Systems	DM 31 (131)	11	400	HA
		10	320	HO

Course Description

The purpose, design, construction, theory, and operating principles of fuel and electrical systems are covered in this course. Special emphasis is placed on developing the skills required to service, repair, test, and adjust the components and their associated systems.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Power Train	DM 41 (141)	11	400	HA
		10	320	HO

Course Description

This course is designed to provide the student with the technical knowledge of the purpose, design, service, construction, and of operating principles of drive and power trains. Trouble shooting, repair, and adjustment procedures are emphasized.

****

Course Title	Course No.	Sem. Hrs.	Total Hrs.	Program*
Diagnostics	DM 61 (161)	11	400	HA
		10	320	HO

Course Description

This course is designed to enable the student to put into practice the information and skills he has accumulated during the first portions of his training program and to introduce him to special systems found in diesel and heavy equipment usage. Trouble shooting, servicing, repairing, and adjusting skills are stressed.

---

*KEY: Hawaii Community College (HA)
Honolulu Community College (HO)
Kauai Community College (K)
Leeward Community College (L)
Maui Community College (M)

AUTOMOTIVE MECHANICS TECHNOLOGY
And
DIESEL MECHANICS TECHNOLOGY

We endorse and recommend for adoption by the University of Hawaii community colleges that automotive-mechanics technlogy and diesel-mechanics technology curricula detailed and unanimously agreed upon by the instructors at a state-wide workshop for program uniformity and standards on March 23-25, 1973.

We further recommend that provisions of the curriculum uniformity and standards for both programs be effective Fall Semester, 1974 for all campuses with these programs.

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COLLABORATIVE ROLES AND FUNCTIONS

OF

OCCUPATIONAL EDUCATION PROGRAMS

REPORT

Submitted by Business Education Team

June 1973

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PREFACE

Educational programs in both the Secondary Schools and the Community Colleges will need to be reviewed and evaluated jointly. Articulated efforts at all levels of the educational process are vital to prevent unnecessary duplication of instruction.

The proposal presented in this document attempts to provide an opportunity for a smoother transition of curricular efforts between the Community Colleges and Secondary Schools in the area of typewriting and shorthand.

GOALS OF THE BUSINESS EDUCATION

STATE ARTICULATION COMMITTEE

1. The articulation of typewriting and shorthand programs of the secondary schools and community colleges in the State of Hawaii.

2. The development of a plan to effect regular, continuous articulation.

OBJECTIVES OF THE BUSINESS EDUCATION

STATE ARTICULATION COMMITTEE

To establish standard procedures for:

1. disseminating information horizontal among community colleges and among secondary schools and vertically between community colleges and secondary schools in the areas of typewriting and shorthand at the community college and high school levels.

2. certifying students for typewriting and shorthand courses taken at the secondary level.

3. awarding of credits by the community colleges for typewriting and shorthand courses taken at the secondary level.

THE CURRENT STATUS

PROBLEMS

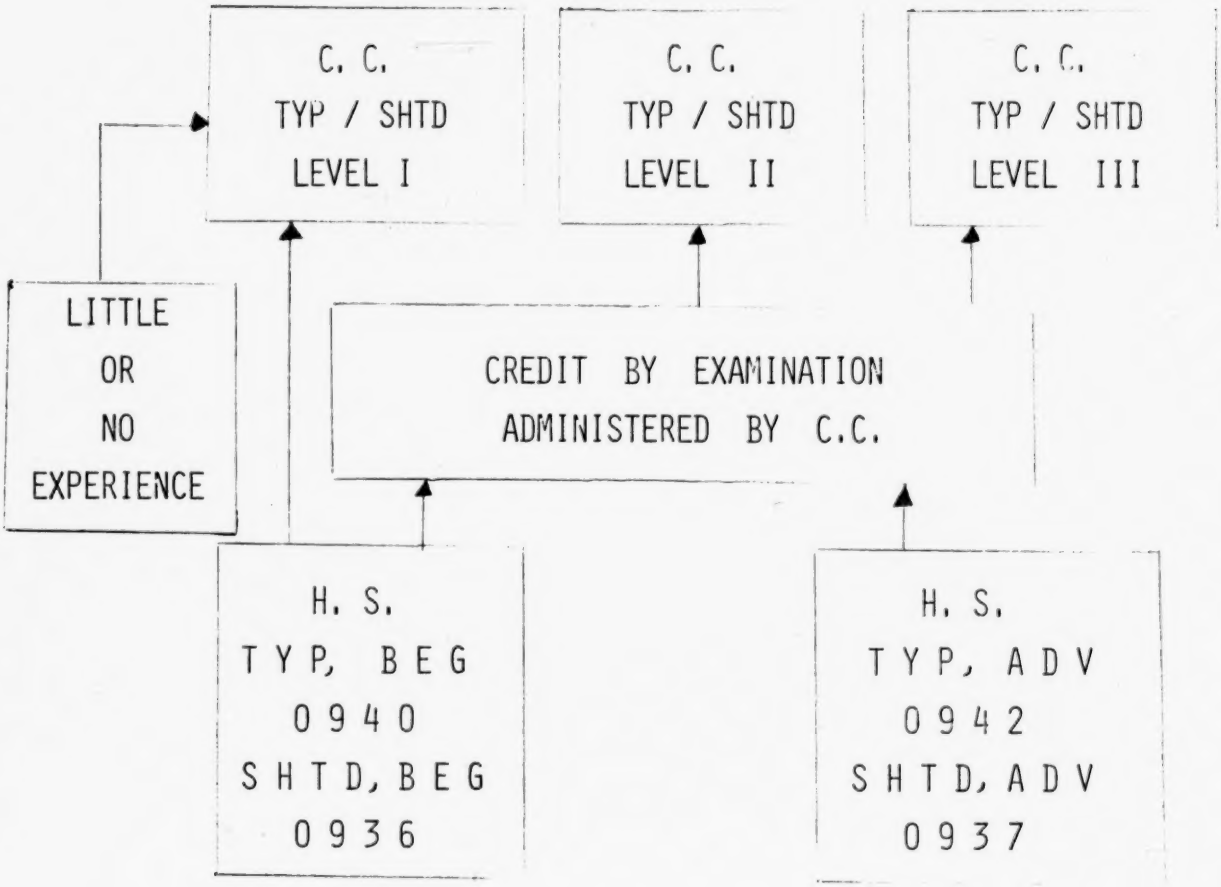
1. There are duplications of courses taken by the student at the secondary and community college levels.

2. Presently a student who has prior background in a specific skill area can receive credit for the course only by enrolling in a similar course or by challenging the course at the community colleges. Students are reluctant to challenge a course because of the "fear of taking an exam" and because of the lack of understanding of the credit-by-exam process.

3. There is a lack of dissemination of information--limited or no articulation among community colleges and among high schools or between community colleges and high schools. Course titles and numbering systems are not the same at all community colleges. Beginning typewriting is called Office Procedures, Typewriting 20, and Typewriting 17, 18, and 19. Beginning shorthand is called Word Processing 21 and Shorthand 20.

4. Heavy concentration on beginning courses and limited personnel have hampered community colleges in offering specialized or more sophisticated courses.

CURRENT STUDENT FLOW CHART



OPTIONS:

TAKE EXAM FOR CREDIT

REPEAT COURSE

THE PROPOSED PLAN

RECOMMENDATIONS

It is recommended that:

1. the University of Hawaii community colleges and the Department of Education accept the implement the proposal for certification.

2. an articulation committee be established and funded by the Office of the State Director for Vocational-Technical Education.

3. the certification procedures be evaluated at the end of the second school year after implementation.

PROCEDURES FOR CERTIFICATION

1. Each subject area and/or level teacher should review the respective attached "Minimum Criteria for Certification."

2. The teacher's professional judgment will determine whether or not a student has successfully completed the requirements as indicated. It is possible that a student may attain the minimum proficiency level before the end of the course, but certification may more likely occur at the end of the semester or academic year.

3. A teacher certifies each student who qualifies by awarding him a wallet-sized certificate for each specific course and level. The certificates may be obtained from the chairman of the business education department. The chairman should obtain the certificates by contacting the Practical Arts Vocational-Technical Section of the Department of Education.

4. The teacher should sign and date the certificate (EXHIBIT L) and give it to the student who, if he wishes, can present it to community college personnel at the time of registration. This certificate will be used for placement, and the student may be allowed to enroll in the next appropriate level for that particular subject.

5. Upon successful completion of the higher level course at the community college and upon application, the student will be granted credits for the lower level courses for which he was certified.

   Example: A student completes Typewriting I as a 10th grader in high school and is awarded a certificate. Whenever he enters a community college, he may be allowed to register for Typewriting II. The community college instructor determines the satisfactory completion of Typewriting II and gives approval for the student to apply for credits for Typewriting I which can be applied towards the total college credits.

6. The final decision of the level of placement will be determined by the community colleges if any questions arise as to the validity of the certificate because of the time element (time lapse between certification and community college matriculation). The present option to challenge a course will still be available to students (credit by examination).

7. It would be desirable for each teacher granting certificates to submit to the department chairman a list of students' names to be filed and used as necessary for later reference.

MINIMUM CRITERIA FOR TYPEWRITING LEVEL I CERTIFICATION

The following requirements should be used throughout the school year to evaluate each student for certification for typewriting Level I:

1. Keyboard Mastery and Basic Typewriting Techniques (See Appendix I)

   a. Mastery of the keyboard using the touch system (EXHIBIT A).

   b. Identification if major distinguishing features of most commonly used manual and electric typewriters (EXHIBITS B AND C).

   c. Care of the typewriter (EXHIBIT D).

2. Speed

   a. Straight copy: 35 gwam for five minutes with not more than five errors at least three times. If the student makes more than five errors, his timed writing is automatically disqualified.

      Syllabic intensity of material used for timed writing--1.4.

   b. Numbers only: 20 gwam for one minute with not more than one error at least three times.

3. Production

   NOTE: All typewritten copies should be proofread and errors neatly corrected.

   a. Personal and business letters--blocked and modified block (EXHIBITS E-1 AND E-2). Student should be able to type within 45 minutes two short (about 100 words) mailable letters with an envelope and one carbon each.

   b. Tabulation--simple, open table from arranged copy, three columns, including main, secondary, and columnar headings within 30 minutes (EXHIBIT F).

   c. Manuscript--two page, unbound manuscript with footnotes within 45 minutes (EXHIBIT G).

4. Composing at the Typewriter

   Examples of creative typewriting:

   a. Sentence completion.

   b. Adding sentences to a given opening statement to form a complete paragraph. To evaluate the paragraph, look for complete sentences, correct spelling, punctuation, and decide whether there is a central thought within the paragraph.

MINIMUM CRITERIA FOR TYPEWRITING LEVEL II CERTIFICATION

The following requirements should be used throughout the school year to evaluate each student for certification for Typewriting Level II:

1. Keyboard Mastery and Basic Typewriting Techniques (See Appendix I)

   a. Mastery of the keyboard using the touch system (EXHIBIT A).

   b. Knowledge of principal parts and functions of the typewriter (EXHIBIT B AND C).

   c. Care of the typewriter (EXHIBIT D).

   d. Mechanics to typewriting--set margins, set tab stops, center material horizontally and vertically, squeeze letters, spread letters, draw lines, and align letters.

   e. Use of reference materials for word division, spelling, punctuation, etc.

2. Speed

   a. Straight copy: 45 gwam for five minutes with not more than five errors at least three times. If the student makes more than five errors, his timed writing is automatically disqualified.

      Syllabic intensity of material used for time writing--1.4.

   b. Numbers only: 25 gwam for one minute with not more than one error at least three times.

3. Production

   NOTE: All typewritten copies should be proofread and errors neatly corrected.

   a. Personal and business letters--blocked and modified block (EXHIBITS E-1 AND E-2). Student be able to type within 45 minutes two medium (about 130 words) mailable letters from unarranged copy with an envelope, and one carbon each. These letters may include mailing notation, attention line, postscript, subject line, etc. (EXHIBIT H).

   b. Tabulation--one ruled and one open table from rough draft copy, three columns including main, secondary, and column headings, each within 30 minutes (EXHIBIT I).

   c. Manuscript--two-page manuscript from rough draft copy with footnotes within 45 minutes (EXHIBIT J).

   d. Business Forms--a variety of business forms such as purchase orders, invoices, memos, job abpplication.

4. Composing at the Typewriter

   a. Sentence completion.

   b. Adding sentences to a given opening statement to form a complete paragraph. To evaluate the paragraph, look for complete sentences, correct spelling, punctuation, and decide whether there is a central thought within the paragraph.

   c. Compose at the typewriter a short letter of at least two paragraphs (minimum 50 words). The finished copy should include all the parts of a mailable letter.

MINIMUM CRITERIA FOR SHORTHAND LEVEL I CERTIFICATION

The student should be able to take three 3-minute, new-matter dictation at 60 wam and transcribe each on the typewriter or in longhand within 30 minuces with 95 percent accuracy (EXHIBIT K).

Upon meeting the above requirements, the student may be certificated to enroll in Level II Shorthand. If the student completes Level II Shorthand satisfactorily, he may upon application be granted credit for Level I Shorthand.

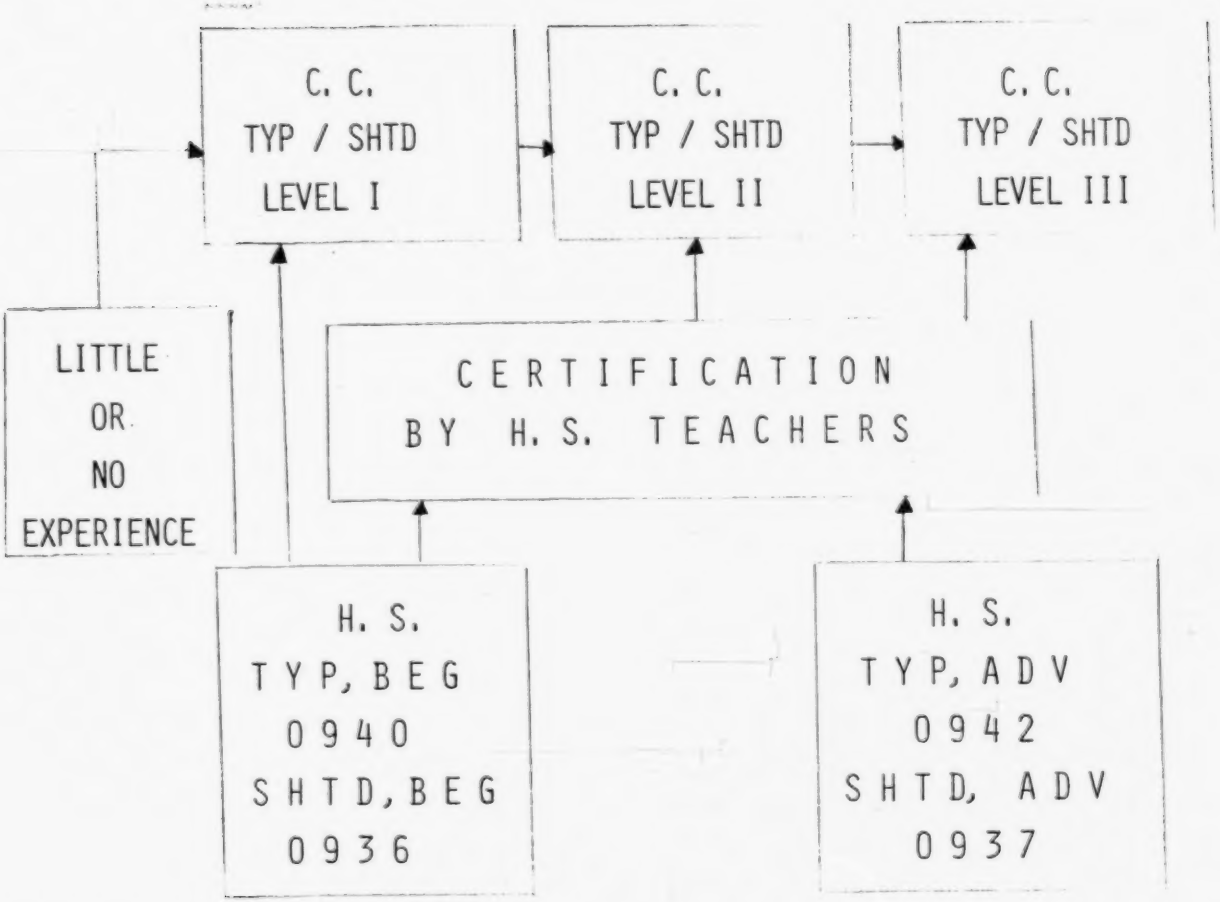
MINIMUM CRITERIA FOR SHORTHAND LEVEL II CERTIFICATION

The student should be able to take three 5-minute, new-matter dictation at 80 wam and transcribe each on the typewriter within 45 minutes with 98 percent accuracy (EXHIBIT K).

The student should be able to transcribe in mailable form within 30 minutes two short (100 words each) business letters dictated at 80 wam.

Upon meeting the above requirements, the student may be certificated to enroll in Level III Shorthand. If the student completes Level III Shorthand satisfactorily, he may upon application be granted credit for Level I and Level II Shorthand.

PROPOSED NORMAL STUDENT FLOW CHART



OPTIONS:

TAKE EXAM FOR CREDIT

REPEAT CERTIFICATED LEVEL

BUSINESS EDUCATION STATE ARTICULATION COMMITTEE

There is definitely a need for continuing articulation; therefore, we recommend that a Business Education State Articulation Committee be formed for the following purposes:

1. to plan the activities pertaining to articulation among community colleges and among secondary schools (horizontal),

2. to plan the activities pertaining to articulation between community colleges and secondary schools (vertical),

3. to implement, where feasible, the recommendations arising from these activities,

4. to articulate with the professional organizations, and

5. to articulate with the business community.

Funds will be required to coordinate the following articulation activities:

1. quarterly meetings of the Business Education State Articulation Committee.

2. workshops, seminars, visits.

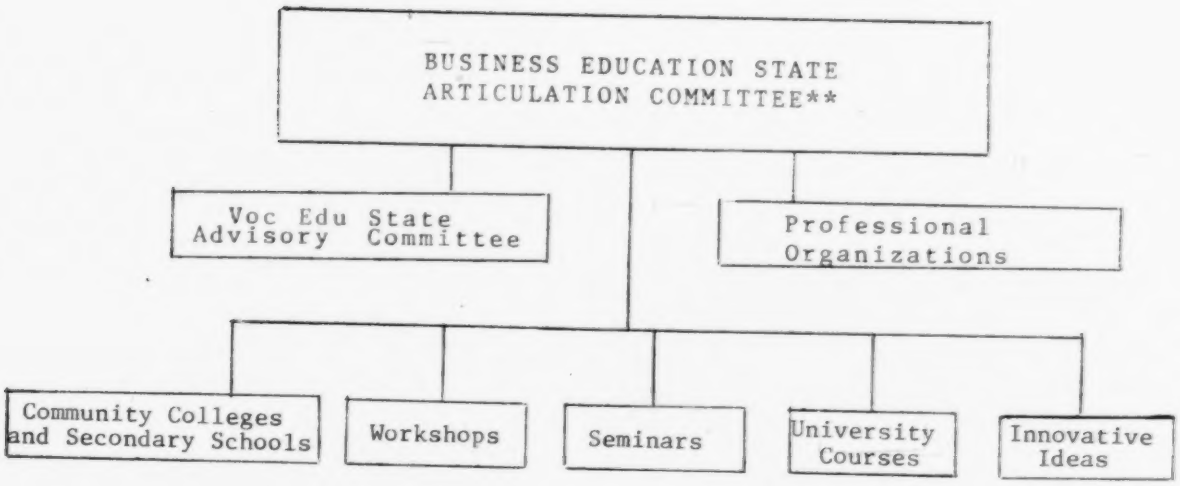
3. meetings to effect horizontal, vertical, and other articulation activities such as meetings with professional organizations and with representatives from the business community.

4. teacher-exchange program.

The committee will be composed of eight members from the Department of Education, one from each school district and one representative from the State Business Education Office to serve as an ex-officio member; and seven members from the community college system, one from each college campus and one representative from the University of Hawaii Community College System to serve as an ex-officio member. It is recommended that a representative from the private schools be invited to participate.

Each district representative, working with the State Business Education Office, will initiate and follow through in the selection of BESAC members. Each community college will be requested to elect a member to BESAC.

Normal term of service is two years; initially seven of the thirteen members will be selected from the EPDA Part F workshop participants and will serve for one-year terms. This will insure continuity.



**Members: Secondary Schools

* 1. Hawaii District
* 2. Kauai District
\+ 3. Maui District
* 4. Oahu - Central District
* 5. Oahu - Honolulu District
\+ 6. Oahu - Leeward District
\+ 7. Oahu - Windward District
8. Department of Education Program Specialist (Ex-officio)
9. Private Institution Representative (non-voting, by invitation)

* = One-year term
\+ = Two-year term

**Members: Community Colleges

\+ 1. Hawaii Community College
* 2. Kauai Community College
* 3. Maui Community College
* 4. Kapiolani Community College
\+ 5. Leeward Community College
\+ 6. Windward Community College
7. Community College Office (Ex-officio)

* = One-year term
\+ = Two-year term

APPENDIX I

EXHIBIT A

TYPEWRITING TECHNIQUES

1. Use of the touch system
2. Horizontal spacing (pica and elite)
   a. Finding the center
   b. Adjusting the paper guide
   c. Planning margin settings
   d. Setting the margin stops
   e. Indenting with the tabulator--use of the tab-set key, tab-clear key, and tab key or bar
   f. Centering a word or line
3. Vertical spacing
   a. Controlling the spacing by the linespace regulator
   b. Centering material vertically
4. Inserting (straightening, if necessary) and removing paper properly
5. Proper typing posture
6. Proper hand position

EXHIBIT B

PRINCIPAL PARTS AND FUNCTIONS OF MANUAL TYPEWRITERS (WHERE APPLICABLE)

1. Aligning Scale
2. Backspacer (key)
3. Bail Scale or Paper-Bail Scale
4. Card Holders and Envelope Guides
5. Carriage
6. Carriage-Position Scale
7. Carriage Release (levers)
8. Carriage Return (Lever) or Linespacer (lever)
9. Clear Key or Lever (for tab stops or total clear)
10. Cylinder or Platen
11. Cylinder Knobs
12. Linespace Regulator
13. Margin Release (key)
14. Margin Scale
15. Margin Set (key or lever)
16. Margin Stops or Set Keys (for margins)
17. Paper Bail
18. Paper-Bail Rolls
19. Paper Guide
20. Paper-Guide Scale
21. Paper Release (lever)
22. Paper Rest or table
23. Printing Point
24. Printing-Point Indicator
25. Ratchet Release (lever)
26. Ribbon Carrier
27. Ribbon Control (lever)
28. Ribbon Reverse (lever)
29. Set Key (for tab stops)
30. Shift Locks (keys)
31. Space Bar
32. Tabulator (key or bar)
33. Touch Control (lever)
34. Typebar Guide
35. Variable Linespacer

EXHIBIT C

PRINCIPAL PARTS AND FUNCTIONS OF ELECTRIC TYPEWRITERS

1. Aligning Scale
2. Backspacer (key)
3. Bail Scale or Paper-Bail Scale
4. Card Holders and Envelope Guides
5. Carriage
6. Carriage-Position Scale
7. Carriage Releases (Levers)
8. Carriage Return (Levers)
9. Clear Key or Lever (for tab stops or total clear)
10. Cylinder or Platen
11. Cylinder Knobs
12. Impression Regulator (carbons)
13. Linespacer Regulator
14. Margin Release (key)
15. Margin Scale
16. Margin Set (key)
17. Margin Stops
18. Multiple Copy Control
19. Off-On Switch or Power Switch
20. Paper Bail
21. Paper-Bail Rolls
22. Paper Guide
23. Paper-Guide Scale
24. Paper Release (Lever)
25. Paper Rest
26. Pressure Regulator
27. Printing Point
28. Printing-Point Indicator
29. Ratchet Release (Lever)
30. Repeat Keys: Backspacer, Carriage Return, Forward Spacer, Underscore, and any other that a particular machine may have.
31. Ribbon Carrier
32. Ribbon Control (Lever)
33. Ribbon Reverse (Lever)
34 Set Key (for tab stops)
35. Shift Locks (keys)
36. Space Bar
37. Tabulator (key or bar)
38. Touch Control (Lever)
39. Typebar Guide
40. Variable Linespacer

EXHIBIT D

CARE OF THE TYPEWRITER

To keep a machine in good working condition:

1. Brush the printing faces of the typebars.
2. Dust inside the machine with a long-handled brush.
3. Keep machine covered when not in use.
4. Wipe the rails on which the carriage moves with a cloth moistened with oil.
5. Wipe the cylinder and paper-bail rolls with a cloth dampened with alcohol.
6. Replace the ribbon when necessary.

EXHIBIT E-1

BLOCKED (SOUTH-WESTERN) OR FULL BLOCKED (GREGG)

December 8, 1972

Mr. Gabriel Swift
321 Elm Street
Manchester, Vermont 05254

Dear Mr. Swift:

As requested in your letter of March 9, we are enclosing our latest catalog of cast iron pipes and fittings.

This catalog also covers copper pipes and fittings. Although the copper pipes and fittings are higher priced, they give far superior service. You may be interested in considering them.

Write us if we can help you further.

Sincerely yours,

LEONARD SUPPLY COMPANY

Albert Andrews
Sales Department

vty

Enclosures

EXHIBIT E-2

MODIFIED BLOCK (SOUTH-WESTERN) OR BLOCKED (GREGG)

December 8, 1972

Mr. Gabriel Swift
321 Elm Street
Manchester, Vermont 05254

Dear Mr. Swift:

As requested in your letter of March 9, we are enclosing our latest catalog of cast iron pipes and fittings.

This catalog also covers copper pipes and fittings. Although the copper pipes and fittings are higher priced, they give far superior service. You may be interested in considering them.

Write us if we can help you further.

Sincerely yours,

LEONARD SUPPLY COMPANY

Albert Andrews
Sales Department

vty

Enclosure

EXHIBIT F

SAMPLE OF SIMPLE OPEN TABLE TABULATION FROM ARRANGED COPY

ADVANCED SECRETARIAL PRACTICE - SECTION I

Comparison of Test Scores

Student	Test A	Test B
Tom Alderman	87	92
Diane Black	74	80
Myrtle Cross	69	73
Frank Dawson	83	87
Freda Gleason	100	92
Jim Hatford	88	80
Mark Jackson	53	57
Peter Sandman	70	65
Jane Brooks	83	87
Jack Zimmerman	90	96

EXHIBIT G

SAMPLE OF TWO-PAGE UNBOUND MANUSCRIPT WITH FOOTNOTES

GROWTH OF INDUSTRY-SPONSORED ECONOMIC EDUCATION

American business leaders have recently recognized economic education as a major responsibility of business. Both the public relations and the employee relations activities of many companies may now center on the same goal--economic education. "Economic education for employees is becoming accepted as a day-to-day operating problem--a way of life for the well-managed business enterprise."[1]

Nature and Extent of Activities. Company efforts in economic education vary widely. Some programs consist merely of the sporadic distribution of posters or advertisements. Others are composed of formal courses in economic principles, in classes held for employees on company time at company expense and taught by trained economists. Within the last few years there has been a tremendous growth of formal course instruction. Information about free enterprise is perhaps the most widely used theme--and the one most commonly criticized.

In September, 1946, Mill and Factory, a handbook of production and maintenance know-how, reported a survey '. . . made among all types and sizes of manufacturing companies . . . about management's education on the many advantages of American free

---

[1] "School Children Learn About Industry," The Public Opinion Index for Industry (Opinion Research Corporation, March, 1950), p. 4.

enterprise and how it functions.'[2] About 500, or 48 percent, had programs called "employee education." The most frequently used media reported were employee publications, group meetings, and talks. Although companies frequently have encouraged employees by reimbursement of tuition to enroll for study in schools and colleges, the recent growth in course instruction has largely bypassed the use of academic institutions.

Few statistics on the actual extent of industry-sponsored economic education are available, due to the varied nature of the activities and the limited research on the subject. Some insight, however, can be obtained from the research which has been completed.

Causes of Recent Growth. Although no one factor can be shown as the primary cause of industry's increased participation in economic education, four factors may be identified as basic causes: (1) the fear of socialism, (2) the growth of communism, (3) the desire to improve relations with employees, and (4) the desire to convey management's viewpoints and achievements to the general public. Management of companies adopting programs of economic education was, by and large, motivated by one or a combination of these factors.

---

[2]Glenn D. Overman, Economic Concepts Everyone Should Know, Monograph 95 (Cincinnati: South-Western Publishing Company, 1955), p. 6.

EXHIBIT H

SAMPLE OF

BLOCKED STYLE LETTER WITH ATTENTION AND SUBJECT LINES (UNARRANGED)

	Words
(Current date) / Bryant Tire Sales Company / 2378 East Fifth Street / Newburgh,	15
New York 12550 / Attention Sales Manager / Gentlemen: / SUBJECT: Federal 4-	29
Ply Tires / It will pay you and your customers who plan to keep their cars for an-	45
other year or more to learn about our new 4-Ply Federal Tire. ¶ A tough 4-ply	61
Nylcon-cord body gives the Federal Tire new skid resistance and a remarkable	76
decrease in road noise. ¶ The Federal Tire has been constructed with SAFETY	91
in mind: More road-gripping rubber and more gripping edges for quick response on	108
wet or dry surfaces. No wonder we can give a 36-month guarantee on Federal	123
Tires! ¶ Mr. Thomas Wallace, the Federal Tire representative in your area, will	139
call on you within the next week or ten days to discuss the merits of this great new	156
Federal Tire. / Sincerely yours, / W. J. Cummings / Sales Manager / (reference	169
initials)	

EXHIBIT I

SAMPLE OF

ROUGH DRAFT COPIES OF RULED AND OPEN TABLES

AVERAGE NUMBER ACCIDENTS PER MONTH

Southern States Corporation

# Factory Locations	1930 to 1939	1950 to 1959	1930 to Date
Chattanooga, Tennessee	18.3	16.5	10.8 ~~12.4~~
Fort Worth, Texas	12.4	10.3	8.7 ~~9.2~~
Greensboro, N. C.	31.7	24.6	18.7 ~~20.8~~
Little Rock, Arkansas	15.0	12.1	10.3 ~~10.9~~
Memphis, Tennessee	9.1	6.4 ~~6.5~~	6.3 ~~6.5~~
Montgomery, Alabama	....	4.5	3.4 ~~3.8~~
~~TOTALS~~ AVERAGES	17.3	12.4	9.7 ~~10.6~~

3-Column Tabulation from Rough Draft

VOLUME ~~OF~~ SALES FOR BURLINGTON-LOREY PRODUCTS

Zone I: FOUR EAST COAST STORES

	1964	1966
Jan.	$88,856	$117,272
Feb.	95,525	71,623
March	40,972	67,159
April	36,284	63,844
May	42,485	72,273
June	39737	79,294
July	42,852	77,858
August	48,085	85,437
Sept.	51,892	83,158
Oct.	57,846	86,628
December	63,292	97,958
Nov.	56,249	90,859

Words

9
15
19
24
29
33
37
41
45
49
54
59
63
73

EXHIBIT J

SAMPLE OF

ROUGH DRAFT OF A TWO-PAGE SIDEBOUND MANUSCRIPT WITH A QUOTATION AND A FOOTNOTE

Words

ADVERTISING AS A CAREER — No underline; 2 blank spaces

Many people in the field of advertising are chiefly creative--the writers and artists. Some are active salesmen who sell space, time, or supplies. Others analyze and study markets or research media to see what is going on in the world. Some manage and coordinate or do the work of others. Most jobs call for some combination of these talents in what is considered one of the most important phases of selling. (in point of fact,)

Tonne, Simon, and McGill say:

> By far the most important form of sales promotion is advertising. This paid form of publicity is used to create a demand for a product and stimulate business. It is also an informative and educational force that aids the consumer in making judgments and adds to his standard of living.

Even though the work in advertising is varied, people who have done well in the field have at least three traits in common: They like to solve problems; they are interested in people and things. They are all sales-minded; Workers in other lines have these traits, too, but successful men and women in this field need them in large measure.

single-space

---

[1] Herbert A. Tonne, Sidney L. Simon, and Esby G. McGill, Business Principles, Organization, and Management (McGraw-Hill Book Company, Inc., New York: 1 , p. 14.

particular; 2nd ed.; 5

Center 1/2" from bottom

1

Word counts: 5, 15, 27, 38, 51, 69, 81, 90, 96, 105, 114, 124, 133, 143, 153, 155, 169, 178, 195, 201, 210, 225, 229, 240, 267, 273, 274

EXHIBIT J (cont.)

Words

2 274

First, the person in advertising must like to solve prob- 285
lems. After have ~~Facts must be~~ gathered ~~to~~ and define the problem, a course 300
of action must be recommended ~~and after it is~~ put into effect, 309
the results appraised and, ~~it must be checked~~ from time to time ~~to~~ re appraise ~~the results~~. 321
Sometimes even excellent work can be improved. 331
Second, the person should be sales-minded. He must think 343
in terms of persuading people; ~~he must~~ ing present ideas ~~in ways~~ 352
that will appeal to their interests. 360
of advertising people The outstanding ~~third~~ trait is a ~~great~~ interest in ~~people and~~ 378
~~things also~~ well as the workings of business. The ~~hope of the~~ adver- 387
tising man must ~~is to~~ present a selling message in ways that draw 399
attention, arouse interest, create a desire for the product, 411
and persuade people to buy them ~~it~~. He should be a salesman with 424
a broad background in ~~a lot of the~~ varied our subjects both practical 435
~~can take in school~~ and cultural. This background 441
is shaped by his personal experiences, the 450
courses he took in school, and his hobbies 458
and other outside activities: it reflects 467
the kind of young man he was and determines 476
the kind of older man he will become. 483

EXHIBIT K

GUIDELINES FOR EVALUATING TRANSCRIPTS*

(Adapted from GREGG TESTS & AWARDS)

One error should be charged for each of the following:

1. Each incorrectly transcribed word, each omitted or added word, each transposition, each deviation from copy as read, and each incorrectly divided word.

2. Each major punctuation error when the sense of the context is affected.

3. Each misspelled word. (When the same word is consistently misspelled, deduct only once.)

4. Each uncorrected typographical error. (Neat erasures are acceptable.)

5. Deduct once only for: paragraphing, capitalization, or arrangement.

Level I Certification:
Maximum number of errors allowed for 95 percent accuracy:

60 wam - 9 errors - 3 minutes

Level II Certification:
Maximum number of errors allowed for 98 percent accuracy:

80 wam - 8 errors - 5 minutes

*NOTE: Students should be encouraged to use reference books, such as, word division manuals, dictionaries, secretary's handbooks, etc.

EXHIBIT L

CERTIFICATE

The student certified by the secondary school instructor(s) will receive the following certificate(s).

This is to certify that

* _____

has met the minimum criteria for

** _____

as set forth by the University of Hawaii Community College System.

_____ _____
Date Instructor

_____
School

* Student's Name
** Course Title:

Typewriting Level I
Typewriting Level II
Shorthand Level I
Shorthand Level II

NOTE: Courses will be added upon expansion of the articulation program.

APPENDIX II

COURSE DESCRIPTIONS FOR TYPEWRITING

0940 TYPEWRITING, BEGINNING

Beginning Typewriting develops a basic skill in typewriting which may be used for either personal use or as a basis for further study and work in the business world. Included in the course are: development of the touch typewriting technique, the ability to compose and arrange in correct forms such writings as themes, reports, outlines, notices, manuscripts, personal and business correspondence. Instruction in basic English and writing is also included to reinforce composing or "writing" on the typewriter.

0942 TYPEWRITING, ADVANCED

Advanced Typewriting develops typewriting skills that are necessary for occupational efficiency and competency. Advanced instruction is given in business letters and legal forms, tabulating problems, statistical reports, manuscript typing and for other business situations. Emphasis is placed in the development of work habits, work standards, and personal traits that will be acceptable in the business world.

APPENDIX III

COURSE DESCRIPTIONS FOR SHORTHAND

0936 SHORTHAND, BEGINNING

Beginning Shorthand develops skill in reading and writing shorthand and lays the foundation for later rapid and accurate transcription. The course includes: (1) study of the shorthand principles, (2) vocabulary building, (3) reading and writing from printed shorthand, (4) development of skill in taking new-matter dictation, and (5) pre-transcription training with emphasis on points of vocabulary, spelling, grammar, and punctuation. Students are expected to take new-matter dictation at a minimum speed of 60 words a minute for three minutes, with at least 95 percent accuracy.

0937 SHORTHAND, ADVANCED

Advanced Shorthand develops stenographic skills that are necessary for employment in office or stenographic occupations. Emphasis is on the development of shorthand speed and the art of transcribing shorthand notes which includes correct note reading, typing, spelling, puncutation, syllabication, proofreading, and grammatical correctness. Students are expected to take new-matter dictation at a minimum rate of 80 words a minute for three minutes, transcribe it with at least 95 percent accuracy, and produce mailable copies of correspondence from dictation.

COLLABORATIVE ROLES AND FUNCTIONS

OF

OCCUPATIONAL EDUCATION PROGRAMS

REPORT

Submitted by Drafting Technology Team

June 1973

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**Head Team Leader *Team Leader

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FOREWORD

With the establishment of the state-wide community colleges and their tremendous growth in the past few years, articulation between the secondary level and the post-secondary institutions becomes an ever-increasing and pressing problem. Increasing numbers of students are seeking post-secondary education in the community colleges rather than finding employment directly out of high school. This places even greater responsibility upon the two institutions to coordinate their programs so that students may develop progressively. While the Department of Education has developed state-wide programming through its Re-structured Vocational-Technical Program, there is as yet no coordinated plan at the community college level, nor has there been a unified effort to integrate the programs of the two institutions.

This document has attempted to delineate the steps necessary to develop a comprehensive, state-wide drafting program that would provide students with sequential options for development of knowledge, skills, and attitudes from the secondary level, through college, and to employment. It is the result of the cooperative efforts of many dedicated people in the State of Hawaii in its planning, researching and development. Experienced drafting teachers, in cooperation with University of Hawaii and Department of Education personnel, have drawn upon some of the most promising theory, development, and practices in the national scene. However, the acceptance and success of this proposal is dependent on the involvement and the contributions from all the people concerned in the development and improvement of Vocational-Technical Education in the State of Hawaii.

INTRODUCTION

HISTORICAL PERSPECTIVE

Drafting is one of the earliest forms of graphic communication. As a pictorial representation of a thing to be constructed, drafting became a useful tool to Egyptians to communicate the construction of pyramids. Greeks and Romans used a crude form of drafting to build the fine temples which have endured until this day.

Later, drafting was to become the language of industry. Ideas, descriptions, sizes, shapes and forms could be conveyed more accurately and more efficiently with a graphic design than through verbal or sign languages. An individual with the basic knowledge and skills of drafting had at his command a highly effective means to improve and augment his ability to communicate.

Today, drafting as a graphic language is no longer the exclusive domain of industry. It belongs to everyone. The average person in this industrial-technological world must be able to understand and interpret drawings in newspapers, periodicals, service manuals and catalogs. In varying degrees, drafting influences all of our lives and plays a tremendous part in the continuity and improvement of our total social and economic structures. All of us will be better equipped to live in our complex society when we possess the basic essentials of drafting.

Moreover, technological developments have brought about great changes in concepts, materials, equipment, and methods of constructing, fabricating and manufacturing consumer goods and services. The economy is advancing at an unprecedented rate, and the results have been reflected in greater numbers of people enjoying improved standards of living. At the same time

those new developments make it possible to enjoy the products of progress, increased specialization has entered into many aspects of our environment and lives. This places constant and increasing demands for highly skilled technicians who must view their education as a continuing process to keep abreast of ever-changing demands.

Drafting technicians are required to assist the architects, engineers, builders, inventors, etc., to put ideas on paper so that what is in one's mind can be communicated to another person to change the abstract into concrete realities. A career as a drafting technician offers a bright future in a place where there is a gathering of people who are engaged in creative work to bring about positive changes in our lives.

PURPOSE FOR AN ARTICULATION AGREEMENT

The need for a more coordinated approach to curriculum planning in the drafting technology areas has long been recognized. Specifically, it has been stated that:

> A federally funded project will provide for the development of an agreement between the DOE and UHCC. The agreement will specify those secondary level courses which will be acceptable for UHCC credits. . . There is as yet no systematic or regular mechanism for joint curriculum planning between secondary and post-secondary levels, although representatives from individual programs within the Community College and DOE have in some cases coordinated curriculum on a one-time only basis. Further coordination is also required in the area of guidance and counseling. (Progress Report on the Implementation of the State Master Plan for Vocational Education, p. 3.)
>
> Vocational education programs should be organized for maximum articulation from the secondary level to the Community Colleges and from the Community Colleges to the four-year institutions. (ibid, p. 4)

This proposal is designed to alleviate some of the problems that have been plaguing the instructional efforts of the different educational levels and to result in a state-wide, coordinated program that will maximize the learning sequences of students.

RESULTANT PROBLEMS

The need for greater articulation between the different levels of our educational institutions has manifest itself in problems that must be resolved. A few of the more pressing ones have been:

1. Lack of understanding of the aims and purposes of drafting programs at the different levels.
2. Lack of proper guidance and counseling and current information so that students may pursue the drafting occupational area as a career as soon as possible.
3. Lack of articulation on the transferability of drafting course credits between community colleges.
4. Lack of communication among community colleges and between the community colleges and secondary schools about the requirements and opportunities of drafting programs.
5. Lack of a centralized processing center to develop and disseminate information and instructional materials.
6. Difficulty in providing drafting programs for students with varying degrees of competencies.
7. Insufficient in-service teacher education to keep abreast of changing technology.

OBJECTIVES

Maximum articulation between the secondary school level and the community college should be attained when the following objectives are realized:

1. Minimal duplication of content materials and a progressive development in knowledge and skills of drafting technology.

2. Standardization of course content, credits, level and number for easy identification and transfer between community colleges and to four-year institutions.
3. Increase in the options available to individuals in the drafting program.
4. Development of a closer interpersonal relationship between drafting students and instructors at the secondary level and community colleges.
5. Maintenance of a close communication-link and coordination between secondary schools, community colleges and the four-year institutions.
6. Greater exchange of information and ideas applicable towards improving the articulation process and the drafting program.
7. More effective utilization of community, industrial, business, union and government resources.
8. Planning, organization and implementation of in-service workshops.
9. Development of procedures and guidelines for evaluation.

CURRENT STATUS

There have been scattered, one-time attempts to coordinate the drafting programs between the secondary schools and individual, community college campuses. This has benefited a small number of students. There is a need to expand the benefits to all of the students enrolled in drafting courses in the State.

SECONDARY SCHOOLS

At the present time, the Department of Education has two programs in Industrial Education. Industrial Arts is the general education program in which students explore six phases of industry:

1. Designing/Drafting Technology

   Industrial Arts

   1159 Industrial Arts I (usually includes drafting offered or required in 7th, 8th, and/or 9th grade)
   1120 Mechanical Drawing I
   1121 Mechanical Drawing II
   1110 Architectural Drawing
   1115 Engineering Drawing
   1163 Research & Development

   Industrial-Technical

   2014 Drafting Technology I
   2015 Drafting Technology II

2. Power Technology

3. Electricity/Electronics Technology

4. Graphic Arts Technology

5. Manufacturing Technology

6. Construction Technology

All secondary schools offer some of the above six phases.

The second is the Industrial-Technical Program which is the vocational program funded by the federal government and State of Hawaii, and is aimed to help students prepare for employment. There are three specific programs:

1. Pre-Industrial Preparation (PIP), for the disadvantaged.

2. Introduction to Vocations (IV), for all regular students.

3. Occupational Skills (OS), for the special-education students.

These specific programs are currently being implemented in the secondary schools. Although each school determines its own, specific course

offerings depending on the student enrollment, the D.O.E. has issued a List of Authorized Courses & Code Numbers, to be used by all state schools. In addition, it has also issued an Industrial Education Curriculum Guide to be used by all teachers of Industrial Education.

COMMUNITY COLLEGE PROGRAM

There are presently five campuses that offer drafting programs leading to a Certificate and Associate in Science degree. However, each campus has its own numbering system, course titles, credits and graduation requirements. The one, essential commonality is the end product. Students do possess the necessary skills and knowledge in the drafting occupational area to obtain employment.

Because of this one commonality, it seems that variations in the programs as they outwardly appear are not as different as one may be lead to believe.

Although the course numbers and titles are different, essentially all of the campuses cover the same materials in their respective programs. Yet, it is quite obvious that a student or lay person would interpret the program of each campus as quite different if he were only to see the list of courses offered. The articulated proposed program attempts to eliminate this type of confusion.

Table I lists the current course equivalencies for drafting courses of the five campuses and should be helpful to registrars, department/division chairmen, and instructors.

COURSE EQUIVALENCY

Table I

eneral Catagories	Honolulu	Kauai	Maui	Hawaii	Leeward
ntroduction and Basic Skills	ADT-21 Architectural Drafting I ADT-25 Desc. Geo.	DT-010, DT-011, DT-012 > General DT-013, DT-014, DT-015 > Arch. & Civil Eng.	ADT-19 Introduction ADT-23 Architectural Draft I ADT-24 Desc. Geo.	DE-21 Basic Drafting	DT- 1 Introduction DT-11 Basic Skills
onstruction Materials	ADT-22 Materials	CMA-010, CMA-011, CMA-012 > General CMA-013, CMA-014, CMA-015 > Arch. CMA-016, CMA-017, CMA-018 > Civil Eng.	ADT-21 Architectural Materials I ADT-22 Architectural Materials II	DE-21 DE-22 Architectural Draft & Survey I DE-41 Architectural Draft & Survey II	2/
rchitectural Construction	ADT-24 Statics and Application	DT-030, DT-031, DT-032 > Arch. Draft Applied I DT-050, DT-051, DT-052 > Arch. Draft Applied II	2/	DE-21 DE-22	DT-22 Floor Plan DT-23 Door & Window DT-24 Structural Section DT-25 Stairs & Fire-Place DT-26 Ext. Elev. DT-27 Foundation DT-28 Roof & Floor Frame DT-29 Int. Elev.
lanning, Design and Presentation	ADT-23 Architectural Drafting II	DT-030 DT-032 DT-050 DT-052	ADT-20 Architectural Graphics	DE-22 DE-42 Architectural Draft & Survey III	DT-12 Res. Planning DT-44 Presentation Draw
odes Specification	ADT-41 Advance Architectural Drafting	DT-031 DT-032 DT-050	2/	DE-42	DT-43 Documents
urveying and Topography	2/	DT-020, DT-021, DT-022 > Civil Draft Applied I DT-040, DT-041, DT-042 > Civil Draft Applied II		DE-21 DE-22 DE-41	2/

General Catagories	Honolulu	Kauai	Maui	Hawaii	Leeward
Building Services	ADT-43 Architectural Engineering	DT-050 DT-051 DT-052	2/	DE-41	T-31 Building Services
History of Architecture			ADT-41 Architecture History ADT-42 Architecture History		
Working Drawing. Residential	ADT-42 Problem in Architectural	DT-031 DT-050	ADT-43 Architectural Drafting II	DE-22	DT-41 Working Drawing Residentia.
Working Drawing Commercial	ADT-44 Architectural Graphics ADT-45 Structural Drafting	DT-032 DT-051	ADT-44 Architectural Drafting	DE-41	DT-42 Working Drawing Commercial
Work Experience		DT-055 Cooperative Education		CVE-58 Cooperative Education	DT-58 Cooperative Voc. Education DT-59 Cooperative Education

[1]Program content included in 4 courses
[2]Content included in other courses

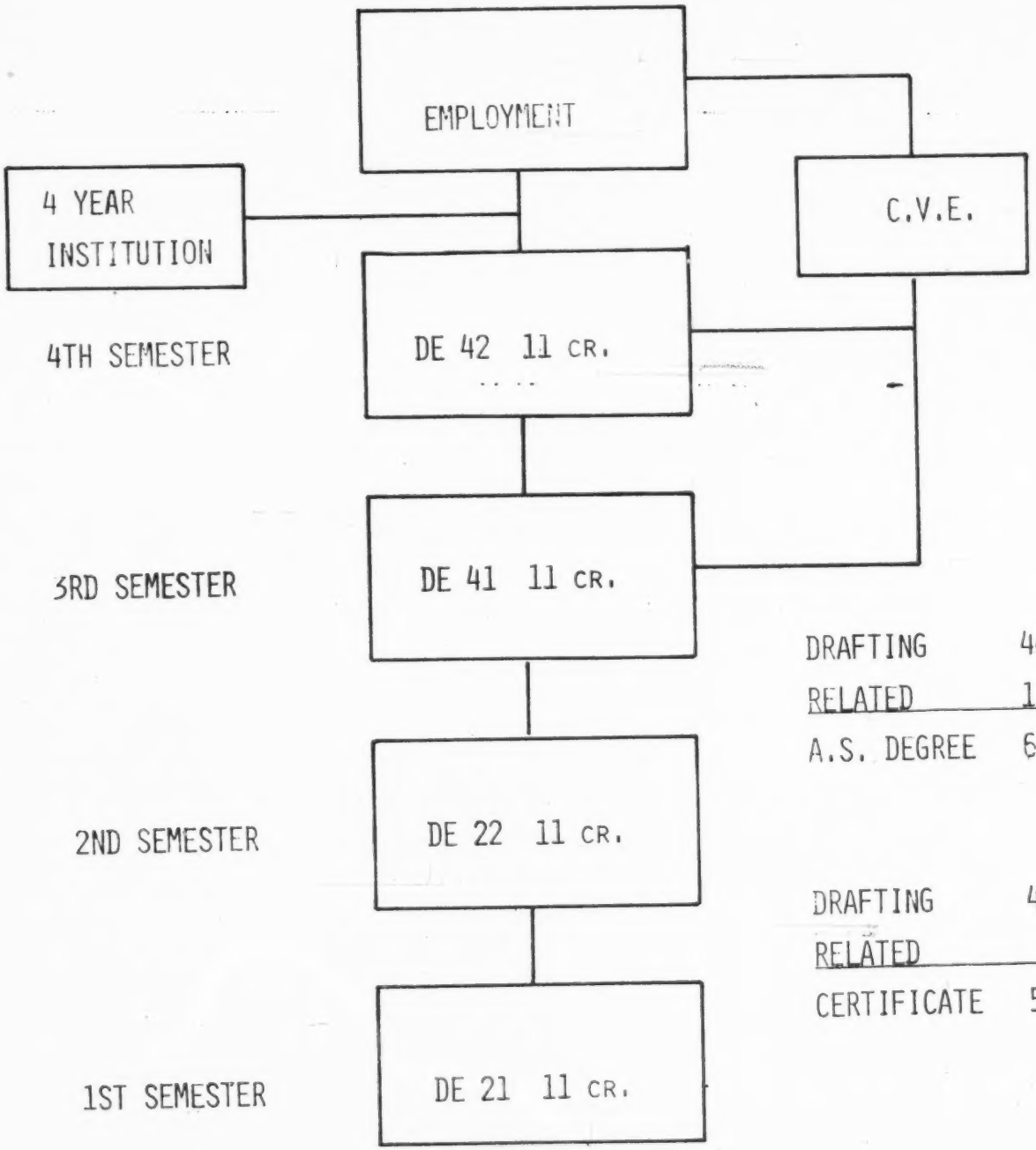
STUDENT FLOW CHART

Students at each of the campuses follow a recommended sequence of courses to attain their educational objective. Following are charts showing the educational progression of students on each of the campuses.

HAWAII COMMUNITY COLLEGE

CURRENT

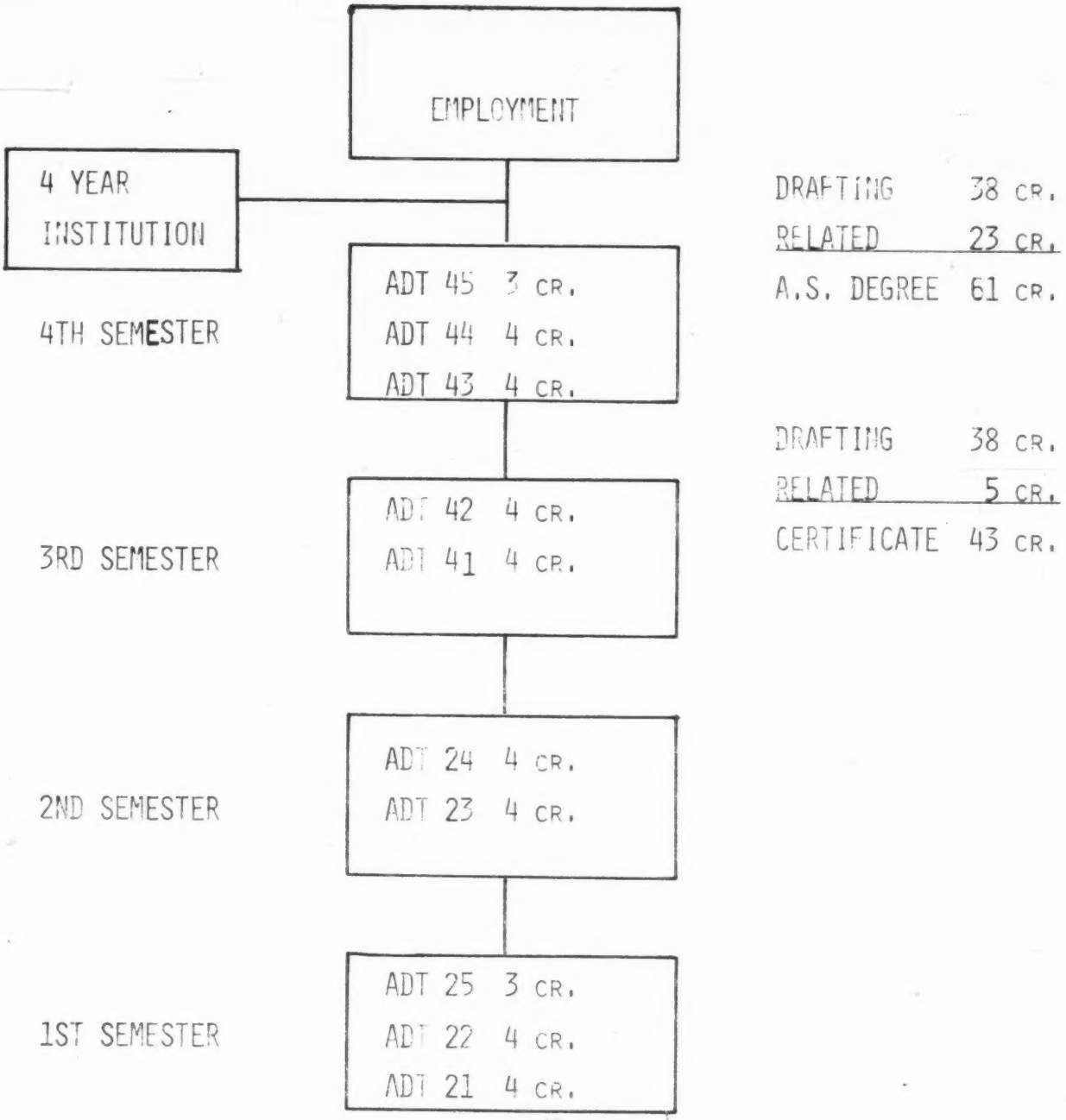
STUDENT FLOW CHART



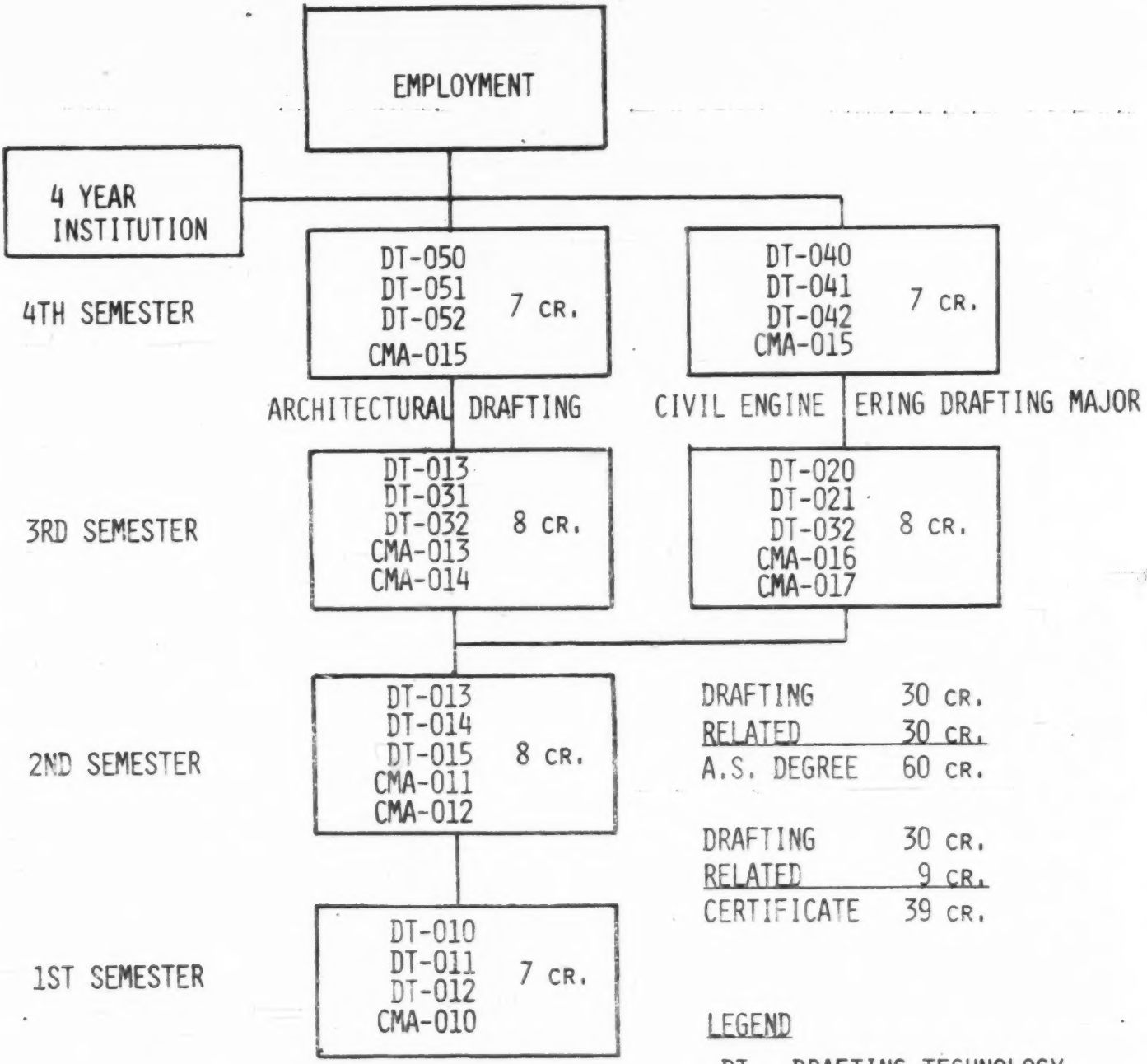
DRAFTING	44 CR.
RELATED	18 CR.
A.S. DEGREE	62 CR.

DRAFTING	44 CR.
RELATED	9 CR.
CERTIFICATE	53 CR.

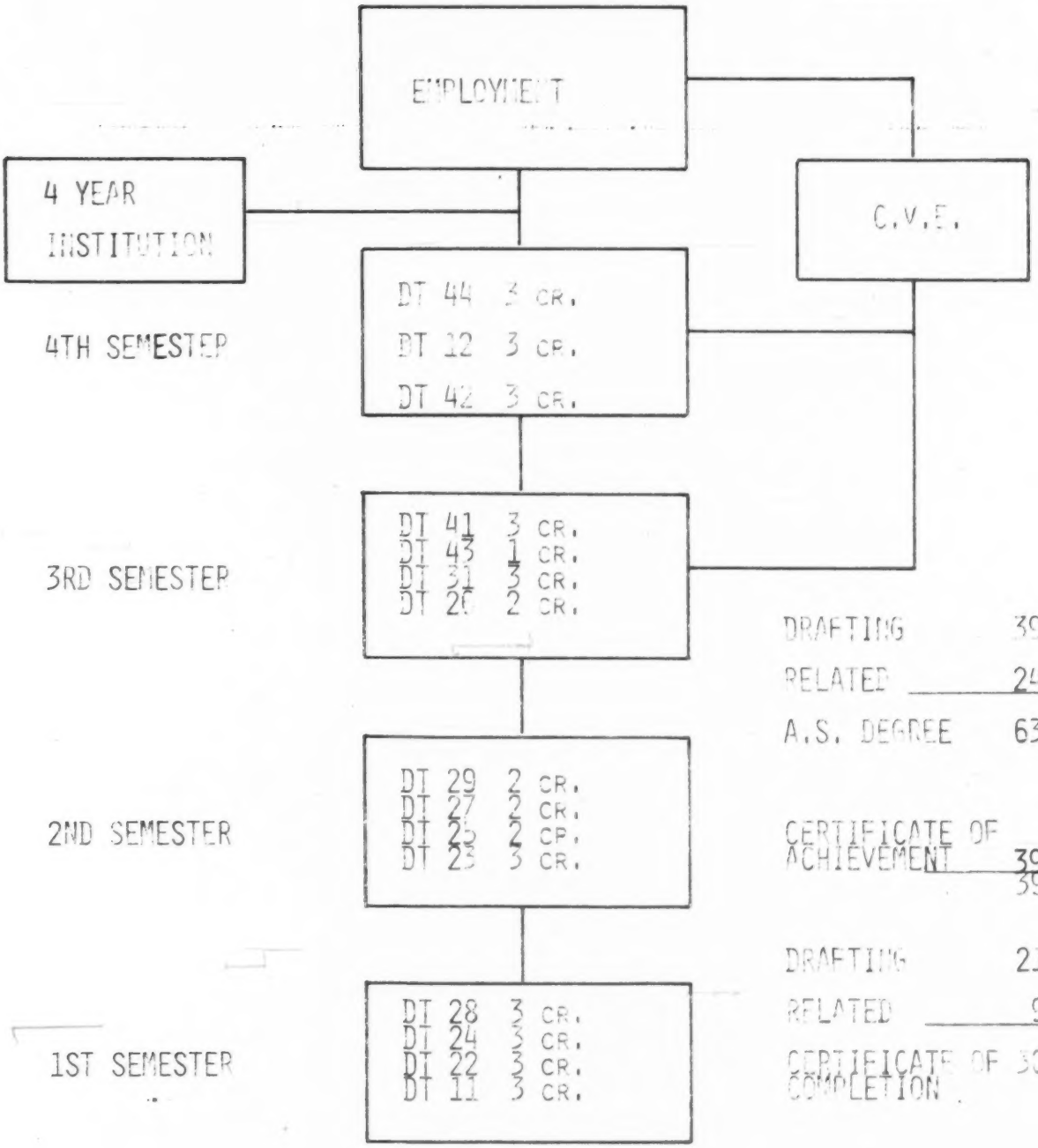
HONOLULU COMMUNITY COLLEGE
CURRENT
STUDENT FLOW CHART



KAUAI COMMUNITY COLLEGE
CURRENT
STUDENT FLOW CHART



LEEWARD COMMUNITY COLLEGE
CURRENT
STUDENT FLOW CHART

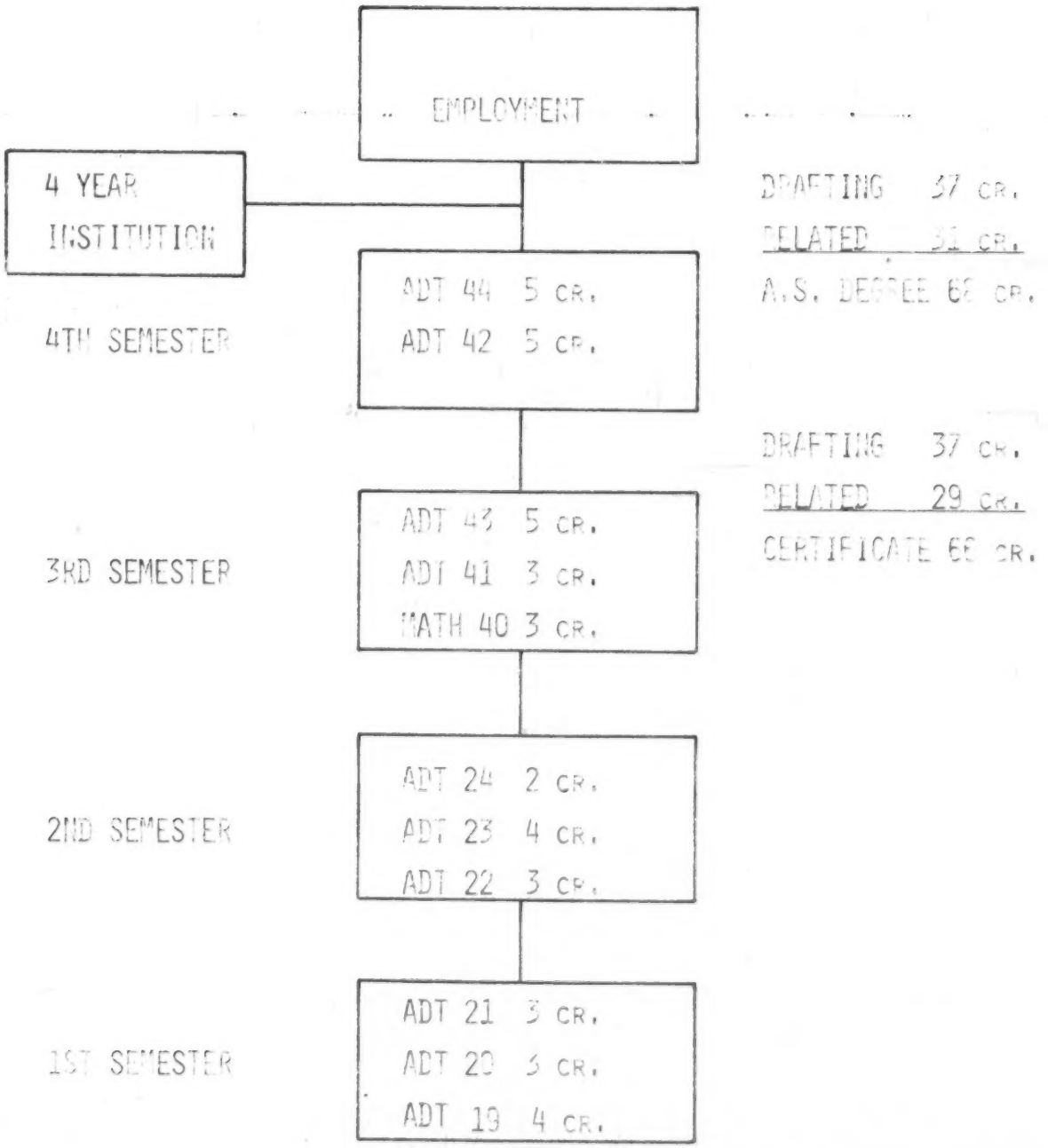


DRAFTING 39 CR.
RELATED 24 CR.
A.S. DEGREE 63 CR.

CERTIFICATE OF ACHIEVEMENT 39 CR.
39 CP.

DRAFTING 21 CR.
RELATED 9 CR.
CERTIFICATE OF COMPLETION 30 CR.

MAUI COMMUNITY COLLEGE
CURRENT
STUDENT FLOW CHART



RECOMMENDATIONS

A state-wide planning committee composed of representatives from each of the community colleges, from the secondary level, and from the state university has met extensively to discuss and design the proposed state-wide drafting program. As outlined below, it stipulates both the vertical articulation needed among the different levels of educational institutions and also the horizontal articulation proposed between colleges in the University of Hawaii Community College System. It is strongly recommended that this proposal be discussed throughout all levels of state agencies and institutions related to drafting and that immediate steps be taken to adopt the proposed articulation agreement.

VERTICAL ARTICULATION

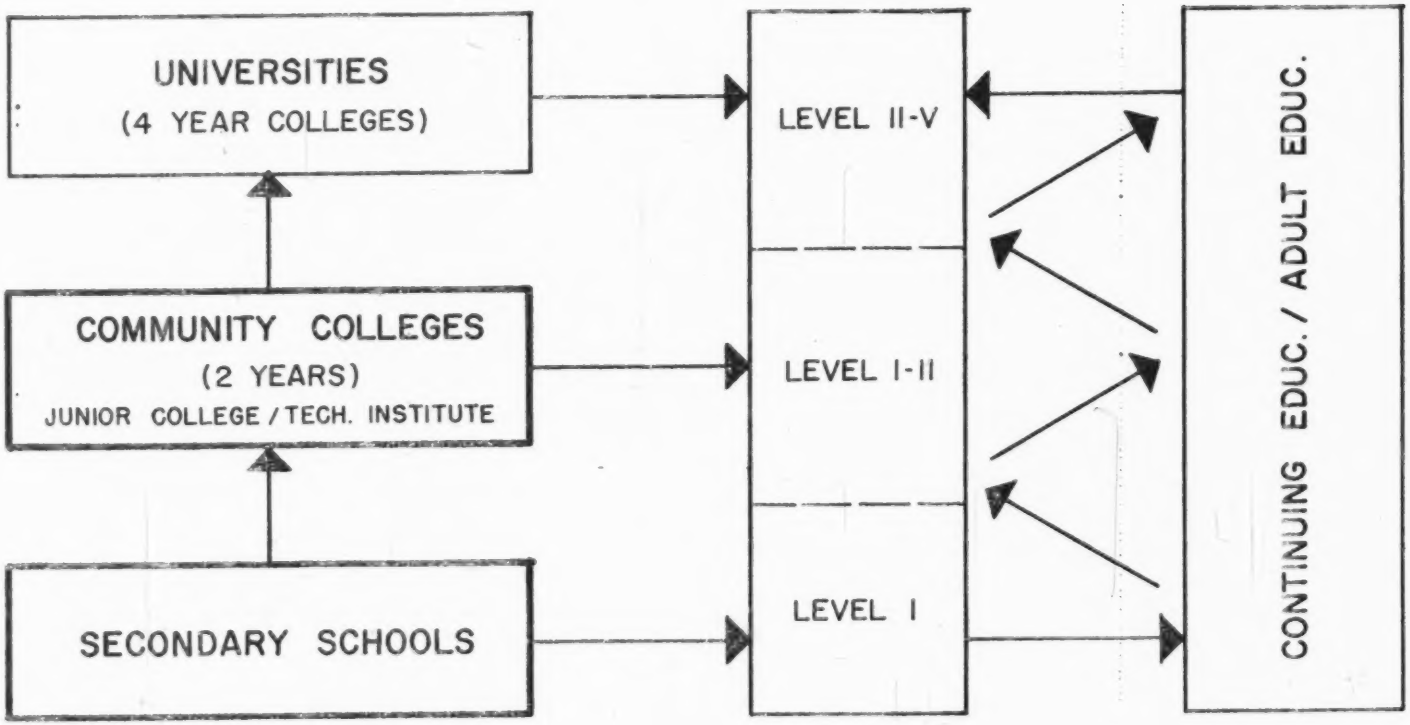
Because of individual differences in interest, desires and aptitude, there should be several avenues available to the student who wants to make a career in the drafting occupational area. The proposed program has provided for individual differences by segregating broad categories of educational opportunities, as described in Chart I.

A high school graduate who has completed a program in drafting can find employment at the lower steps of the career ladder as an office boy or possibly as a tracer. He is restricted to Level I job opportunities (see APPENDIX B) and must await his opportunity to get "on the board" and learn on the job.

A more desirable approach calls for a person to receive more formal training at a community college. With five campuses having drafting programs, a majority of the employers depend upon the community colleges for new, entry-level draftsman. Moreover, a person with a post-high school,

CHART I

CAREER OPTIONS FOR DRAFTING



*NOTE: JOB TITLES CORRESPONDING TO SPECIFIC LEVELS ARE LISTED IN APPENDIX B.

two-year, formal background has greater options in securing a job. In addition to that of a draftsman, he may qualify for related jobs, such as sales in building materials or in different phases and types of construction work. In other words, unlike the high school graduate, the community college graduate avails himself to Level II careers as well as Level I.

Upon completion of the community college program, a student may continue his education at a four-year college. Successful completion at this level will open even greater options for jobs ranging all the way up to Level V.

Although the educational accomplishments at different levels may be very important, it is equally important for the graduate to feel that learning is a never-ending process, formally or informally. Enrollment in Continuing Education and Adult Education classes plays an essential role and serves to keep one abreast of technological changes and to provide the vehicle for upward job mobility.

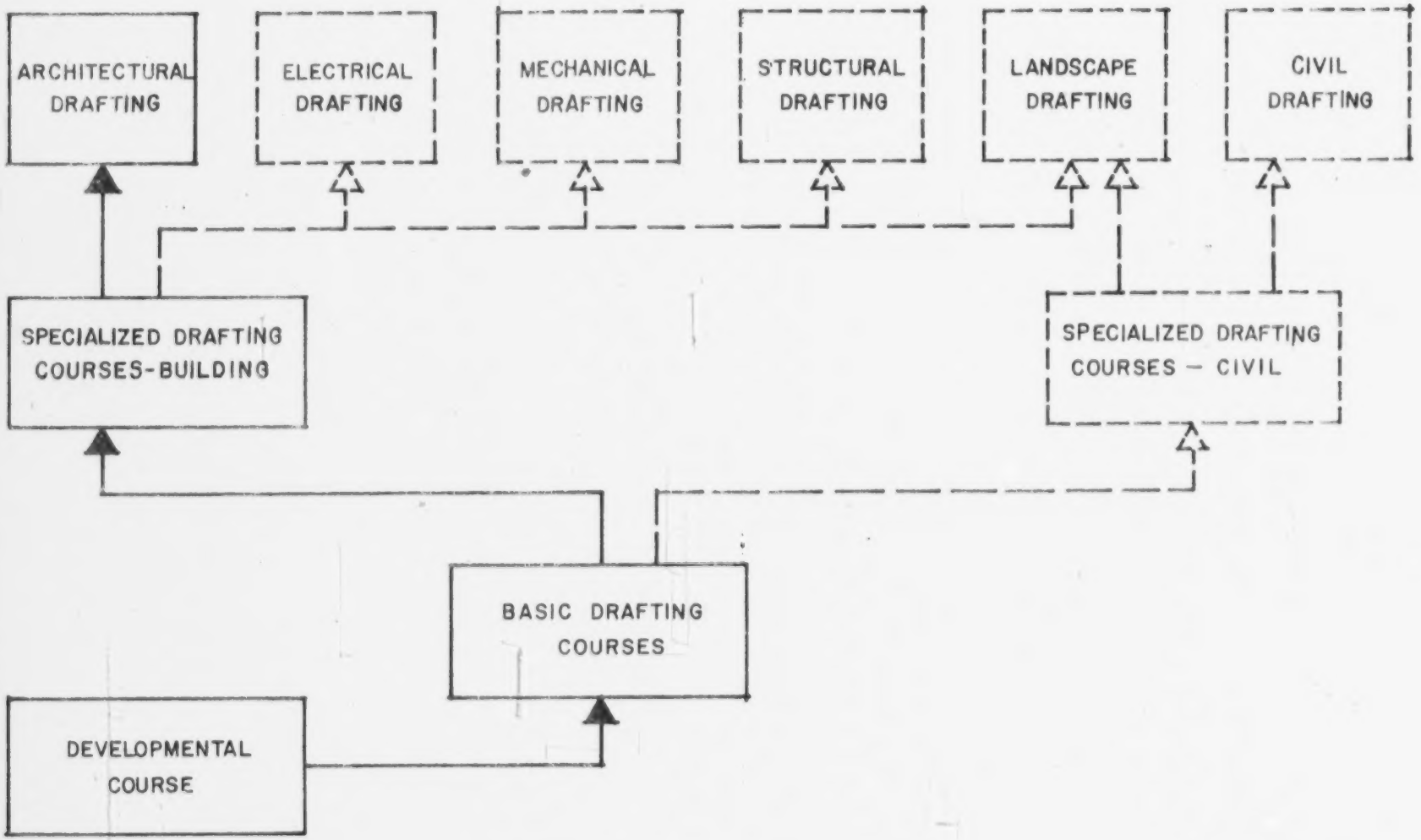
HORIZONTAL ARTICULATION

Course Clusters

With each community college having a different drafting curriculum, state-wide vertical articulation is difficult to achieve. Chart II depicts the proposed drafting program recommended for adoption by all the state community colleges. Solid-line boxes represent course clusters which should be adopted; the second phase represented by boxes with broken lines will be developed.

CHART II

A PROPOSED STATEWIDE COMMUNITY COLLEGE DRAFTING TECHNOLOGY PROGRAM



In the first phase of articulating this state-wide program, the community colleges will move toward standardizing the courses they now offer; the second phase will develop courses giving additional options to students. The first phase would include an integration and development of the content and objectives for four principal course clusters; developmental course, basic drafting courses, specialized drafting courses, and architectural drafting option courses. The developmental course is essential for minimal success in basic drafting courses. The architectural drafting specialty option was selected for the initial stage since it is one specialty presently provided by all campuses and accords the easiest transition to a state-wide, integrated plan.

Because more options need to be provided, the second phase of development stresses specialized course work in electrical, mechanical, structural, and landscape drafting which, as seen from the chart, stems from the specialized drafting cluster. To provide specialization in the civil drafting option as well as landscape drafting option the specialized cluster in civil courses needs to be included.

Curriculum

For each of the four clusters in the first phase, specific courses have been recommended. These course titles, their course numbers, and credit allocations are described below:

I. Developmental Course:

(To be taken by students who do not have drafting background)

Course No.	Credits	Course Title
DT - 10	4	Introduction to Drafting I

II. Basic Courses:

(To be taken by all students majoring in the drafting occupational area)

Course No.	Credits	Course Title
DT - 100	3	Graphics for Drafting
DT - 101	3	Drafting II

III. Specialized Drafting Courses--Building:

(To be taken by stuients who will specialize in Architectural, Electrical, Mechanical, Structural or Landscape Drafting Options)

Course No.	Credits	Course Title
DT - 120	3	Construction Materials I
DT - 122	*Var. 1 or 3	Floor Plan and Stairs
DT - 123	Var. 1 or 3	Structural Section
DT - 124	Var. 1 or 3	Roof and Floor Framing Plan
DT - 125	Var. 1 or 2	Foundation
DT - 126	Var. 1 or 2	Plot Plan, Utility Lines, Retaining Walls, etc.
DT - 127	Var. 1 or 3	Exterior and Interior Elevations, Room Finishing Schedule
DT - 128	Var. 1 or 2	Door and Window Schedules, Details, Hardwares
DT - 129	Var. 1 or 3	Cabinet Work, Hardwares, Fireplace, Fencing, Gates, Miscellaneous Details

*One credit for lecture only; full credits for lecture-laboratory.

IV. Working Drawings--Architectural Drafting:

(To be taken by student specializing in Architectural Drafting)

Course No.	Credits	Course Title
DT - 200	5	Architectural Working Drawing I
DT - 220	3	Building Services, Electrical, Plumbing, Ventilation, Vertical Transportation

V. Electives:

(Courses that could be taken by students to meet certification or degree requirements for Architectural Drafting specialization)

Course No.	Credits	Course Title
DT - 121	3	Construction Materials II
DT - 130	3	Surveying and Topographic Drafting I
DT - 201	5	Architectural Working Drawing II
DT - 202	5	Architectural Working Drawing III
DT - 205	4	Design and Planning
DT - 230	3	Surveying and Topographic Drafting II
DT - 250	3	Perspective Drawing
DT - 251	4	Presentation Drawing
DT - 252	3	Model Building
DT - 253	2	Building Specifications
DT - 258	Var. 1-4	Cooperative Work Experience
DT - 260	3	History of Architecture I
DT - 261	3	History of Architecture II
DT - 269	3	Architectural Math

Program requirements for students specializing in Architectural Drafting and campus options are outlined below:

Requirements	Credits and Campus Options	
	OPTION I	OPTION II
Basic Drafting	6	6
Specialized Drafting--Building	11	24
Working Drawing--Architectural Drafting	8	8
Architectural Drafting Electives	16	3
SUB TOTAL	41	41

The Certificate of Achievement would be awarded upon the successful completion of these 41 units of drafting courses, plus the individual campus' distribution requirements or electives, to equal at least a total of 47 units.

The Associate of Science degree would be awarded upon the successful completion of these 41 units, plus the individual campus' distribution requirements or electives, to equal at least a total of 60 units.

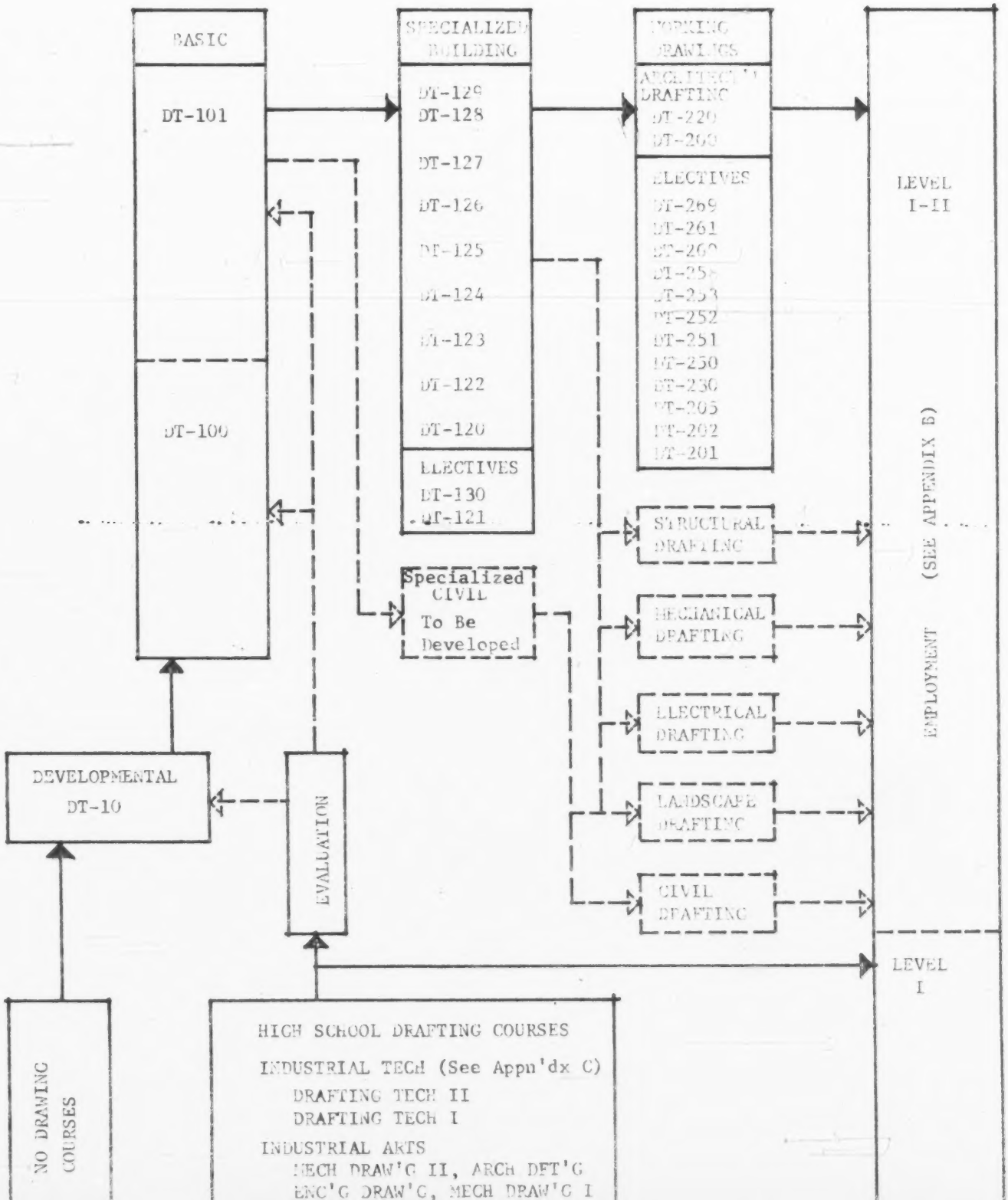
PROPOSED STUDENT FLOW CHART

Once articulation among the community colleges and between the community colleges and the secondary schools has been accomplished, individuals should be able to progress from formal education into employment with a greater amount of available options. The student flow chart of these options is depicted in Chart III. Solid arrows indicate tenable options in the first phase of articulation, and dotted arrows indicate those to be developed later.

Individuals with no high school drafting background enroll in the initial developmental course (DT 10) at one of the community colleges.

Successfully completing the developmental course, he then progresses through the basic drafting course and the specialized drafting courses and into an area of specialization before finding employment.

STUDENT FLOW CHART III



Students with high school drafting may seek employment in a Level I position, or, if they desire to upgrade their chances for successful placement, they may enroll in a community college. There, his grasp of basic principles would be evaluated, and he would be placed accordingly into the basic course (DT-100) or bypass that into DT-101. He would then progress through the series and finally to Level I or II employment.

Evaluation would be a comprehensive process involving at least three areas of concern:

1. the student's high school performance,
2. recommendations of high school instructor,
3. student performance on a paper and pencil pre-test which include architectural drawing problems.

For students intending to enter the community college drafting program at the basic level, the recommended background includes knowledge, skills, and attitudes that could have been attained either through formal course work or informal experiences. These are grouped below under cognitive, psychomotor, and affective domains.

I. Cognitive Domain

A. Communicative

1. Knowledge, understanding and application of drafting terminology.

a. The student will be able to read and write drafting terminology commonly found in basic drafting texts.

b. The student will be able to use correct drafting terminology to express and solve basic drafting problems.

B. Mathematical

1. Knowledge, understanding and application of arithmetic.

a. The student will be able to add, subtract, multiply,

and divide numerals and fractions, both common and decimal, to solve basic drafting problems.

2. Knowledge, understanding and application of measurement and calculation in drafting.

a. The student will be able to measure distances accurately.

b. The student will be able to find and read basic drafting reference tables.

C. Basic drafting methods

1. Knowledge and understanding of materials and methods of construction.

a. The student will be able to identify common construction materials and explain how they are used.

II. Psychomotor Domain

A. Manipulative

1. The student will be able to use common drafting tools, machines, supplies and techniques to solve basic drafting problems.

III. Affective Domain

A. Work Orientations

1. The student will be able to show a cooperative spirit with co-workers, be willing to work long hours at a drafting table, pay attention to details, follow directions and accept responsibility.

ADDITIONAL RECOMMENDATIONS

To fully realize a state-wide articulated plan, steps should be taken to implement each of the following:

1. Establish a centralized center for the development and dissemination of appropriate instructional and guidance materials.
2. Establish an association composed of drafting instructors from the Department of Education, University of Hawaii Community Colleges and University of Hawaii at Manoa for the promotion, coordination, and improvement of the drafting program.
3. Provide additional courses and workshops for in-service credits along the lines described below:

SUGGESTED CONTENT FOR IN-SERVICE WORKSHOPS

I. Basic communication skills in college.

- a. Reading assignments.
- b. Written presentation.
- c. Oral presentation and description.
- d. Translation (Translating written words in graphic pictorial language.)
- e. Preparing lecture notes.
- f. Ability to follow verbal and written directions.
- g. Research procedures.

II. Basic manipulative skills.

- a. Line quality.
- b. Lettering skills.
- c. Use of basic drawing instruments.
- d. Construction of geometrical shapes.
- e. Dividing a line into segments.
- f. Use of scales and angle-measuring instruments.

III. Basic terminologies, symbols and conventions.

- a. Parts of a house.
- b. Representative symbols.
  1. Material
  2. Electrical
  3. Plumbing
- c. Conventions
  1. Method of representing:
     (a) Single wall (wood)
     (b) Double wall (wood)
     (c) Masonry wall
     (d) Steel
     (e) Windows
     (f) Doors
     (g) Various fixtures
     (h) Cabinets
     (i) Closets and storage closets, etc.

IV. Awareness of restriction in design by State Board of Health, Housing Code, Uniform Building Code.

V. Services of various governmental agencies and confronting to their rules and codes to obtain a building permit.

4. Form student associations to cultivate enthusiasm for and discussion on drafting techniques and problems.

5. Promote standardized college schedule, including interim periods.

6. Provide courses and workshops for counseling and guidance personnel to articulate their efforts.

EVALUATION OF EFFECTIVENESS OF THE ARTICULATION AGREEMENT IN THE DRAFTING PROGRAM

The following evaluative criteria and guidelines are recommended for determining the effectiveness of the proposed articulation agreement for the drafting program:

1. The increase in percent of community college entering students who have taken one or more drafting courses in high school. At the present time only 65 percent of the students who enroll in the drafting program at the community colleges have had drafting experiences at the secondary level.

2. The increase in the number of drafting classes at the secondary level and community colleges.

3. The increase in percent of secondary students who take at least one basic course in drafting while in high school. At the present time only 5 percent of the students in grades 9-12 are enrolled in drafting classes.

4. The increase in percent of high school drafting students who enroll in drafting programs at a community college.

5. Increase in the percent of high school graduates who enroll in the drafting program at the community colleges and who qualify for the basic core course, DT 110. (See Student Flow Chart III.)

APPENDICES

APPENDIX A

GLOSSARY

ARCHITECTURAL DRAFTSMAN prepares design and construction drawings for buildings.

ARTICULATION is the joining or sharing of ideas with each other.

CAREER EDUCATION is the special educational preparation for a profession or other calling undertaken as a lifework.

CAREER OPTIONS are choices of career specialization in drafting, ie., architectural, civil engineering, mechanical, electrical, etc.

CIVIL DRAFTSMAN prepares drawings for roads, grading and utilities on the building site.

COOPERATIVE EDUCATION is a unique plan for education designed to integrate classroom study with supervised, vocational training outside the classroom. (on the job)

CREDITS mark official certification of the completion of a course of study. They are also units of academic work for which such acknowledgement is made.

DRAFTING AIDS consist of the T-square, parallel straight-edge, drafting machine, triangles, templates, etc.

DRAFTING TECHNICIAN applies to a worker who interprets the architect's or engineer's design sketches and drawings and produces the graphic instructions for the craftsman to follow in building.

DRAFTSMAN is one who prepares clear and complete plans and details from rough sketches. The draftsman usually uses mechanical aids or instruments to prepare the drawings for the craftsman.

DRAWING is a picture or sketch produced to provide a graphic rather than a verbal or narrative description.

ELECTRICAL DRAFTSMAN is one who prepares the drawings for the electrical requirements of a building.

GENERAL DRAFTING is drafting which covers a broad spectrum of disciplines.

HORIZONTAL ARTICULATION is the sharing of ideas within the same group, strata or level.

LANDSCAPE DRAFTSMAN is one who prepares the drawings for planting of the building site.

MAXIMUM ARTICULATION is the joining of ideas to establish coordinated and graduated instructional programs. It is also communication, both vertically and horizontally, with maximum understanding and kokua.

MECHANICAL DRAFTSMAN is one who prepares drawings for the plumbing and ventilation requirements of buildings.

STRUCTURAL DRAFTSMAN is one who prepares the drawings for the structural framing of buildings.

TECHNICAL DRAFTING is the production of specialized and useful drawings.

TRANSFER is the acceptance of academic credits from one institution of learning to another.

VERTICAL ARTICULATION is the sharing or joining of ideas between different stratas or group levels.

APPENDIX B

JOB CLUSTERS FOR FIVE MAJOR LEVELS OF DRAFTING OCCUPATIONS

Level I	D.O.T. Code
Apprentice Draftsman	017.281
Black and White Draftsman	017.281
Tracer	017.281
Office Boy	
Level II	
Draftsman, Electrical	003.281
Draftsman, Civil	005.281
Draftsman, Structural	005.281
Draftsman, Mechanical	007.281
Detailer	017.281
Furniture Detail Man	017.281
Detail Draftsman	017.281
Draftsman, Commercial	017.281
Draftsman, Heating and Ventilating	017.281
Draftsman, Map	017.281
Draftsman, Plumbing	017.281
Draftsman, Refrigeration	017.281
Level III	
Estimator and Draftsman	003.187
Draftsman, Topographical	017.281
Technical Illustrator	017.281
Draftsman, Landscape	019.281
Estimator and Inspector	019.288
Level IV	
Systems Analyst Business Electronic Data Processing	012.168
Factory Layout Man	012.168
Chief Design Draftsman	017.168
Topographical Mapping Supervisor	017.168
Licensed Land Surveyor	018.182
Registered Land Surveyor	018.188
Photogrammetrist	018.281
Space Analyst	019.288
Estimator and Draftsman Supervisor	019.168
Drainage Design Coordinator	019.187
Engineering Specification Writer	019.288
Electrical Specification Writer	019.288

Level V

Architect	001.081
School Plant Consultant	001.168
Engineer, Building Illuminating	003.081
Engineer, Industrial Illuminating	003.081
Engineer, Outdoor Illuminating	003.081
Engineer, Systems Planning	003.187
Engineer, Electrolysis and Corrosion Control	003.187
Engineer, Construction	005.081
Structural Designer	005.081
Engineer, Sewage Disposal	005.081
Engineer, Structural	005.061
Engineer, Air Conditioning	007.081
Engineer, Refrigeration	007.081
Engineer, Steam Distribution	007.081
Engineer, Heating	007.151
Engineer, Materials Handling	008.081
Engineer, Fire Protection	012.188
Engineer, Industrial	012.188
Engineer, Industrial Health	012.188
Architect, Landscape	019.081
Architect, Highway Landscape	019.081
Architect, Park Landscape	019.081

APPENDIX C

VOCATIONAL-TECHNICAL COURSES OF STUDY AVAILABLE IN THE HAWAII SECONDARY SCHOOL PROGRAM* (ONE OF EIGHT OCCUPATIONAL CLUSTERS)

A. Programs.
   1. Preparatory vocational-technical program.
      a. Pre-industrial preparation
      b. Introduction to vocations

TECHNICAL GRAPHICS OCCUPATIONS

GRADUATION REQUIREMENTS	BASIC COURSES	MAJOR	ELECTIVES
English 3 units Social Studies 3 units Physical Ed. 1/2 unit Health 1/2 unit	Technical Science Mechanical Drawing Graphic Arts Design 1 and 2(art) Geometry	Option I Graphic Arts Tech I Graphic Arts Tech II (incl. coop work exp.) Option II Drafting Tech 1 Drafting Tech II (incl. coop work exp.)	Speech Fund Family Living

   2. Occupational skills program; Shop and building maintenance services.

B. Hierarchy of career opportunities: Technical graphics occupations.

Print Shop Helper
Draftsman Helper
Hand Etcher Helper
Draftsman
Lithographer
Printer
Copy Cameraman
Reproduction Technician
Architectural Draftsman
Advertising Manager
Head Draftsman
Lithographic Copy Preparer
Industrial Designer
Engineering Designer
Architect

*Excerpts from Department of Education, Office of Instructional Services, Vocational-Technical Education, Curriculum Section, Chart of Vocational-Technical Courses of Study Available in the Hawaii Secondary School Program

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COLLABORATIVE ROLES AND FUNCTIONS

OF

OCCUPATIONAL EDUCATION PROGRAMS

REPORT

Submitted by Food Service Education Team

June 1973

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GOALS OF FOOD SERVICE ARTICULATION PLAN

The need or a corrdinated approach to curriculum planning in food service area has been recognized. Specifically, it has been stated that:

> A federally funded project will provide for the development of an agreement between the DOE and UHCC. The agreement will specify those secondary level courses which will be acceptable for UHCC credits . . . . There is as yet no systematic or regular mechanism for joint curriculum planning between secondary and post-secondary levels, although representatives from individual programs within the community college and DOE have in some cases coordinated curriculum on a one-time basis. Further coordination is also required in the area of guidance and counseling. (Progress Report on the Implementation of the State Master Plan for Vocational Education, p. 3)

> Vocational education programs should be organized for maximum articulation from the secondary level to the community colleges and from the community colleges to the four-year institutions. (Ibid. p. 4)

This proposal is designed to alleviate some of the problems that have been plaguing the instructional efforts of the different educational levels and result in a state-wide coordinated program that will maximize the learning sequences of students.

OBJECTIVES OF THE FOOD SERVICE ARTICULATION PLAN

Maximum articulation between the secondary school level and the community college should be attained when the following objectives are realized:

1. Provide progressive development in knowledge and skills from secondary schools to community colleges by minimizing duplication of course content.
2. Standardize course titles, objectives, and course numbers to facilitate student transfer between community colleges.
3. Develop and maintain a close communication-link between students and faculty at the secondary schools and community colleges.

4. Encourage trade and industry personnel to identify with the food service programs and provide meaningful input and consultant support.

THE CURRENT STATUS

There is no articulation among and between the community colleges, with the high schools, or with the four-year campuses of the University of Hawaii. There are no transfer equivalencies between the institutions; courses have different titles and numbers. Although the course contents are similar if not identical, courses have various credit allowances. Some informal exchange has been taking place between the faculties, with a sharing of materials and ideas.

COMMUNITY COLLEGE PROGRAMS

Food Service Education Programs are presently offered at Kapiolani Community College, Hawaii Community College, Leeward Community College, Honolulu Community College, and Maui Community College.

Honolulu Community College offers a program in Commercial Baking leading to an Associate in Science degree.

Maui Community College offers a program in Hotel Mid-Management leading to an Associate in Science degree. A Hotel Mid-Management Program is also offered at Kapiolani Community College.

CURRENT STATUS OF THE FOOD SERVICE PROGRAMS IN THE SECONDARY SCHOOLS

The Food Service Program in the secondary schools of Hawaii is designed to help the student become acquainted with the tasks and responsibilities in the food service industry and to develop personal qualities essential for job success. Through this program the student should be prepared for an entry-level job or be prepared for specialized, post-secondary education and training.

Type of Program	Name of Institution	Location	Course
A PRE-INDUSTRIAL PREPARATION PROGRAM in food service (FEAST) correlates the basic verbal, mathematical, and scientific skills with the Food Service experience. Eleventh and twelfth grade boys and girls meet approximately four hours per week in Food Service I and II classes. The cooperative program provides on-the-job training for Food Service students.	Farrington High	1564 N. King Street Honolulu 96817	Food Service I Cooperative Education Home Economics
	Konawaena High	P. O. Box 698 Kealakekua 96740	Food Service I Food Service II Cooperative Education
	Waianae High	85-251 Farrington Hwy. Waianae 96792	Food Service I
The INTRODUCTION TO VOCATIONS program in Food Service is guidance oriented and includes knowledge about the possible career opportunities as well as experiences in the food service clusters of occupations. Eleventh and twelfth grade boys and girls meet approximately four hours per week in Food Service I and II classes.	McKinley High	1039 S. King Street Honolulu 96814	Food Service I
	Waipahu High	94-455 Farrington Hwy. Waipahu 96797	Food Service II

The Food Education and Service Training (FEAST) Program Guide has been developed to help secondary schools plan and implement a program.

*See Appendix A

CURRENT STATUS OF THE FOOD SERVICE EDUCATION PROGRAMS AT HAWAII COMMUNITY COLLEGE

The program of Hotel and Restaurant Technology is designed to follow the cluster-course concept. The logic is to give the student a number of job-entry options when seeking positions in industry. The courses are designed to allow the student to learn a variety of skills while retaining a flexibility for the student wishing to specialize.

The objectives are to teach basic entry skills in quantity food production, storeroom and food cost-control techniques, cashiering, dining room service, fundamentals of baking, communication skills and supervision.

Students may choose to obtain a Certificate of Completion or an Associate of Science degree. Entry levels into industry for the graduate student are largely influenced by the job market and the student's willingness to seek positions wherever available thoroughout the state in hotels, clubs, restaurants, school cafeterias, or hospital food services.

CURRENT STATUS OF THE COMMERCIAL BAKING PROGRAMS AT HONOLULU COMMUNITY COLLEGE

There are three levels of programs presently being offered in the Honolulu Community College Commercial Baking Program. The Associate in Science degree (61 semester hours) in Commercial Baking includes 25 semester hours in Liberal Arts and 36 semester hours in commercial baking major courses. Graduates may be qualified for employment as a beginning baker, or for a positions as pastry maker, or other classification requiring a knowledge of baking in the areas of commercial food preparation.

The Certificate of Achievement (36 semester hours) in Commercial Baking includes courses for commercial baking majors only. Graduates are qualified for employment as a beginning baker or for other commercial food preparation.

After consultation with the instructor, a Certificate of Completion may be applied to students who cannot comply with a degree or certificate of achievement requirements. Recipients of this certificate may qualify for employment as a beginning baker.

CURRENT STATUS OF THE FOOD SERVICE EDUCATION PROGRAMS AT KAPIOLANI COMMUNITY COLLEGE

There are three levels of programs presently being offered at the Kapiolani Community College Food Service Education Division. The Associate in Science degree (60 semester hours) in Food Service Management includes 18 semester hours in Liberal Arts and 42 semester hours in food service major courses. Graduates may be qualified for employment as assistant managers, managers, or as supervisors of food service in restaurants, hotels, cafeterias, institutions, clubs, and hospitals.

The Certificate of Achievement (30 semester hours) in culinary Arts (General Cook) major and Dining Room major includes 6 semester hours in general education. Graduates are qualified for employment as specialty or general cooks in restaurants, hotels, clubs, and cafeterias, or as host/hostess, waiter/waitress, or assistant dining room managers.

The Certificates of Completion (8 weeks intensive training) are offered in several areas and are designed to train the graduate for specific skills in a specific job. These include short order cook, waiter/waitress, pantry worker, and baker's assistant.

CURRENT STATUS OF THE FOOD SERVICE EDUCATION PROGRAMS AT LEEWARD COMMUNITY COLLEGE

There are three levels of programs presently being offered in the Leeward Community College Food Service Education Division. The Associate in Science degree (60 semester hours) in Food Service, includes 36 semester hours in food service and 6 semester hours in each of the 4 general education courses. In addition, Food Service 58 or 59 (Cooperative Education) is recommended as an elective. Graduate may be qualified for employment in hotels, restaurants, cafeterias, clubs, and hospitals.

The Certificate of Achievement (42 semester hours) in Culinary Arts (General Cook) major includes 6 semester hours in general education. Graduates are qualified for employment as specialty or general cooks in restaurants, hotels, clubs, and cafeterias.

The Certificate of Completion (8 weeks intensive training) is offered in several areas and is designed to train the graduate for specific job skills. These include pantry worker, assistant baker or cook.

STATE-WIDE ARTICULATION PROBLEMS BETWEEN SECONDARY SCHOOLS AND COMMUNITY COLLEGES IN FOOD SERVICE EDUCATION

The following problems were identified by the Food Service Education Articulation Committee after considerable discussion and review of the current programs and situations:

1. Food Service course titles and numbering systems are not identical among community colleges.

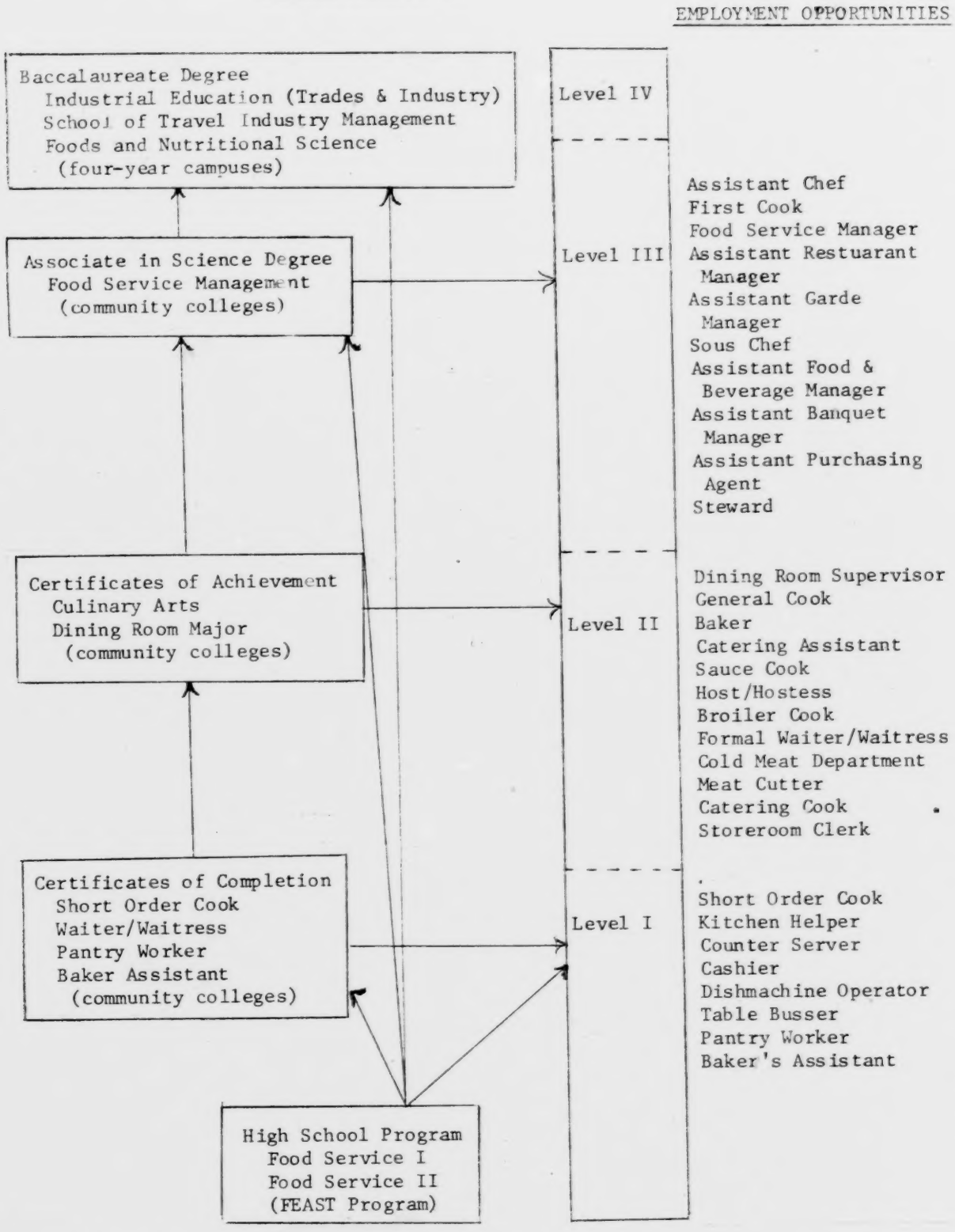
2. Direction and policies to effect transfer of course credits between community colleges and between the secondary schools and community colleges are not defined.

3. Effective guidance and counseling are lacking at both the secondary and community college levels.

4. There is insufficient coordination with related subject areas, such as mathematics, English, etc.

5. Communication among and between community colleges and secondary schools to discuss plans and problems and to share ideas and resources is inadequate.

STUDENT FLOW CHART



FOOD SERVICE COMMITTEE RECOMMENDATIONS FOR ARTICULATION AMONG EDUCATIONAL INSTITUTIONS IN THE STATE OF HAWAII

A. Secondary Schools

The Food Service Committee Recommends that:

1. students who have been accepted for enrollment in a community college Food Service Program and have successfully completed Food Service I at the secondary level with a grade of "C" or better be awarded credit for the following community college courses:

   FSER 120 A and B Introduction to Food Service

   FSER 123 A Basic Nutrition

2. students who have been accepted for enrollment in a community college Food Service Program and have successfully completed Food Service II at the secondary level with a grade of "C" or better be given the option to apply for credit at a community college in FSER 140 courses including any or all of the following: FSER 140 Fundamentals of Cookery, FSER 140A Fundamentals of Baking, FSER 140B Cold Food Pantry, FSER 140C Fundamentals of Cooking, and FSER 140D Short Order Cooking.

3. students completing one year of cooperative education experience at the secondary level with a verification letter from the employer will be given the option to apply for credits in FSER 140 including any or all of the following courses at the community colleges: FSER 140A Fundamentals of Cookery, FSER 140A Fundamentals of Baking, FSER 140B Cold Food Pantry, FSER 140C Fundamentals of Cooking, and FSER 140D Short Order Cooking.

B. Community Colleges

The Food Service Committee Recommends that:

1. community colleges adopt the standardized course titles, numbers, and objectives (see Appendix D).

2. students be permitted to transfer from one community college to another and be credited with number of credits allowed at the receiving institution.

C. General

1. A State-wide Food Service Articulation Committee be established to meet semi-annually. The purpose is to update, revise and modify programs as needs arise and make recommendations to appropriate administrations for consideration and approval.

2. Representatives of food service programs be provided resourses to attend state, national, and international conferences to strengthen and enrich state-wide programs.

3. A central reference center be designated for the purpose of sharing available instructional resources.

APPENDICES

APPENDIX A

AUTHORIZED COURSES AND CODE NUMBERS
Department of Education

VOCATIONAL TECHNICAL

1227 FOOD SERVICE I

Objectives:

1. Identify the types of food service operations and career opportunities in the food service industry.

2. Demonstrate basic principles of food preparation and service, and safe and sanitary work habits.

Description:

An introduction and orientation to a series of related occupations in the food industry and the qualifications of a successful food service worker. Provides practical work experiences in the classrooms and laboratories, including basic principles of food preparation and service.

1228 FOOD SERVICE II

Objectives:

1. Identify personal qualities which contribute to personal employability in the food service cluster.

2. Demonstrate quantity cookery on a quality basis.

3. Qualify for on-the-job experience in the food service cluster or pursue post-secondary education.

Description:

Designed to qualify an individual for entry level positions in the food industry and to motivate an interest to pursue a food service career. Work experiences are provided in the classrooms and laboratories or on-the-job. Emphasis is on quantity food preparation and service training as well as puchasing, storeroom control, and care of supplies and equipment.

1232 COOPERATIVE HOME ECONOMICS EDUCATION (Food, Child Care, etc.)

Objectives:

1. Develop desirable personal traits.

2. Apply work habits and attitudes essential to success in home economics related occupations.

3. Make the transition from school to full-time employment.

Description:

Designed for students interested in on-the-job training and appropriate in-school related instruction for occupations which use home economics knowledge and skills. Units of instruction include orientation to the world of work, personal development, money management, and vocational information.

APPENDIX B

FEAST PROGRAM CONCEPTUAL STRUCTURE

I. Orientation to the Food Service Industry

A. Food Service Establishments

Understanding the food service industry can be an important employment asset, as well as a selective device for the worker.

a. The food service industry includes those establishments serving food to people away from home.

b. Establishments vary in operations and personnel according to the types of services rendered and the type of merchandise sold.

c. Factors contributing to the expansion: technological advances, increased population, greater income, greater mobility and use of transportation facilities, suburban living, emphasis on leisure activities (vacations), interest in other cultures, emphasis on socialization and entertaining and change in living pattern.

d. The need for better trained and educated food workers has increased with the growth of industry.

e. Managements' interests and concerns in training, developing and motivating a satisfied and efficient staff contributes to a successful organization.

f. The art and science of food management includes the application of technical skills of food service, as well as the efficient use of human resources.

B. Career Opportunities in Food Service

Food Service occupations offer numerous opportunities for employment and advancement to those with interest and ability.

a. The food service industry offers a broad range of occupations to suit various personality types.

b. A food establishment requires a range of workers from the unskilled to the highly skilled.

c. The range of skills and type of functions in the industry encourages movement from one skill level to the next.

d. Advancement in the food industry is based on skills learned, experiences gained, and the ability to get along with people.

C. Essential Personal Qualities

Personal qualities are as essential as the technical skills in career development in the food service industry.

a. Some essential traits required in food service are: courtesy, integrity, dependability, willingness and ability to follow directions, adjustability, promptness, cooperation.

b. Some personal qualities to cultivate are: good health, self-confidence, personal hygience, good grooming and emotional stability.

c. Interest and concern about people are basic in developing functional relationships.

d. A worker's attitude and behavior influence his relationships with other employees.

e. Harmonious working relationships include cooperation, courtesy, pleasantness, tolerance, friendliness and patience.

D. Labor Laws and Employment Policies

The employability of a person will be affected by the laws of our country.

a. Preparation for the world of work involves knowledge of the laws and regulations relating to employment. These include: Fair Labor Standards Act, minimum hours, employment of minors, unemployment compensation insurance, workman's compensation, safety codes, health codes, and collective bargaining laws.

b. Employment policies of food establishments include: hours of work, wages, fringe benefits, age and health requirements, dress requirements, and probationary employment.

c. Prospective employees need to know the possibilities and variations of fringe benefits offered by employment: pension-bonus plan, profit-sharing, vacations, and insurance.

d. Employees need to be able to interpret the functions and place of the union in relation to their work.

e. There are many factors related to obtaining a job, including: application forms, letter of application, personal interview, methods of obtaining recommendations, and use of telephone in applying for a job.

f. Successful personal interviews will be dependent on: punctuality, personal appearance, attitude and communicative skill.

II. Fundementals of Food Preparation Skills

A. Techniques of Food Preparation

Basic information and skills in food preparation are necessary for initial employment and advancement opportunities.

a. The menu is the basic instrument of a restaurant. It reveals to both employees and guests: 1) type of service rendered, 2) type of food prepared, 3) cost of the meal, 4) hours of service, and 5) type of equipment used.

b. Menus are divided into two main categories: The table d'hote and the ala carte. Table d'hote offers the customer a complete meal and several courses at a set price. The ala carte menu lists each item with its own separate price.

c. Some menus, such as those for hospitals and nursing homes, are prepared to assist certain types of people with diet problems.

d. An understanding of recipe terms contributes to a more effective use of a recipe for food preparation and service.

e. A working knowledge of standard measures and weights is essential for food service workers engaged in preparation and service of food products.

f. The use of accurate procedures in measuring is essential for producing quality products in quantity.

g. The selection of the preparation and cookery method depends upon: custom, tenderness of food, equipment, palatability, and digestibility.

h. Institutional and commercial foods are prepared cooked or uncooked and are served hot or cold.

i. Cold foods (pantry) preparation include salads, dressings, appetizers, sandwiches and other items or foods identified with the pantry department of a commercial kitchen.

j. Basic cookery methods used by food service workers are the dry and moist methods.

Dry Cookery Method	Moist Cookery Method
Broil	Boil
Fry (saute and pan fry)	(Poach)
Deep fat fry	Braise
Bake (roast)	(Stew)

k. The ability to follow correct preparation procedures enhances the nutritive content, color, flavor, texture, appearance, and digestibility of food.

B. Essential Work Habits in Food Services

Knowledge and use of clean and safe work habits are necessary for job success.

a. Accidents are not only dangerous and costly, but also usually result from unsafe acts and unsafe conditions.

b. Accidents can often be prevented through personnel training and good management practices.

c. First aid is the immediate and temporary care given to victims of an accident or sudden illness.

d. The personal cleanliness of each worker contributes to sanitation in food preparation and service.

e. Clean working habits decrease the spread of germs, bacteria, insects and rodents.

f. The "well-groomed" appearance affects the reputation of food service establishments.

g. The utilization of proper housekeeping procedures promotes sanitation.

h. Equipment and utensils differ in commercial establishments because they prepare foods in quantity.

i. Commercial equipment and utensils are fabricated to withstand greater wear and tear.

j. Safety practices in the use of equipment enhances the effectiveness of an employee.

III. Fundamentals of Dining Service and Meal Management

A. Techniques of Dining Service

An understanding and the appropriate use of the different techniques of service can add to customer satisfaction and be an employment asset.

a. Table settings are affected by menus, space, decor and type of service used in establishments.

b. Dining service is classified as formal (carts and silver platters), tray, arm, family and self-service.

c. Service is defined as providing pleasant, accurate, and prompt attention to dining guests.

d. Knowledge and effective use of facilities, space, materials, as well as service procedures are essential to an efficient employee.

B. Personal Qualities for Dining Service

Personal qualities are as essential as technical skills in providing customer satisfaction.

a. Some essential traits for service are: good work habits, positive attitude toward work and people, personal hygiene, and attentiveness to details.

b. Other essential qualities are: good memory, muscular coordination, communicative skill, and awareness of individual (customer) needs.

c. Customer satisfaction is affected by the pleasant manners and rules of etiquette displayed by personnel.

d. Employment satisfaction and financial reward will be dependent on efficient table service and pleasant attitude of the employee.

C. Menu and Production Planning

An understanding of nutrition, food preparation and service enables the food service worker to be employable in a wider range of food service establishments.

a. The basic purpose of food is to provide the nutrients essential for growth and maintenance of the body.

b. Following an established food plan is more important to school lunch, hospitals and inplant feeding than to commercial food establishments.

c. Commercial menus are planned with regard to popularity, appearance, and taste, as well as ease of production and service.

d. Preparation of foods in quantity requires skillful use of heavy duty equipment, temperature control, proper timing for service and correct portioning.

e. Minimizing costs and maximizing profits are the financial goal of food service establishments.

f. A standardized recipe which has been tested for quality and yield is a good measure in food control.

g. Portion control is an important factor in food management.

h. Each food service employee has a responsibility to assist in keeping costs down and increasing profits.

IV. Purchasing Procedures and Inventory Controls

A. Purchasing

Understanding the importance of following correct purchasing procedures is essential to maintaining quality and quantity control.

a. Correct ordering techniques require knowledge of products, menu, market, and control measures.

b. Correct receiving procedures require accurate check, record, and report of goods delivered.

c. Correct issuing procedures require knowledge of production and service needs.

d. Efficient and safe use of scales, trucks, and shelving are essential.

e. Accurate use of order forms, invoices, and requisitions contribute to correct purchasing procedures.

B. Storage Facilities and Methods

Understanding of space, products and temperature are essential to efficient management.

a. Correct storage temperatures and facilities of products are essential to prevent spoilage and waste.

b. Locks, inspection, and standards are necessary to prevent pilferage and loss.

c. Sanitary and safe work habits in handling products and equipment are essential for proper storage management.

C. Inventory Controls

Skills in maintaining inventory records are essential to knowledge of cost control and food management.

a. Correct physical inventory procedures are necessary to storeroom management.

b. A working knowledge of record keeping assists in maintaining cost control.

APPENDIX C

FEAST PROGRAM OBJECTIVES

I. Orientation to the Food Service Industry

A. Food Service Establishments

To become aware of the size, diversity and trends of the food service industry.

To identify the various types of food establishments according to size, service, product and clientele.

To analyze the reasons for growth and expansion of the food service industry.

To evaluate management practices in the industry.

B. Career Opportunities in Food Service

To become aware of the unlimited career opportunities in the food service industry.

To identify the various jobs existing in industry and the qualifications required of each.

To relate job mobility within the industry to personal goals for advancement.

C. Essential Personal Qualities

To develop personal qualities essential for job success.

To apply essential personal qualities needed for job success.

To identify attitudes and behavior patterns essential to effective interpersonal relationships.

D. Labor Laws and Employment Policies

To comprehend the legal aspects of employment.

To interpret the federal and state labor laws in relation to employment.

To list personnel policies and current trends of employment

To identify and complete the job application process.

II. Fundamentals of Food Preparation Skills

A. Techniques of Food Preparation

To apply the principles of skills for commercial food preparation.

To identify the functions of a restaurant menu.

To define and apply culinary terms.

To demonstate the use of weights and measures.

To distinguish and practice the various methods of food preparation.

B. Essential Work Habits in Food Services

To apply the basic principles of safety and sanitation in food service operation.

To demonstrate safety precautions in food handling process.

To demonstrate sanitary practices in food handling process.

To develop skill in the use, care and maintenance of commercial equipment and utensils.

III. Fundamentals of Dining Service and Meal Management

A. Techniques of Dining Service

To develop proper techniques of dining service procedures.

To demonstrate ability to render various dining service techniques.

To relate the use of physical environment to dining service.

B. Personal Qualities for Dining Service

To develop personal traits and human-relations skills essential to effective dining service.

To demonstrate traits necessary for customer satisfaction.

To illustrate the human-relations skills in dining service.

C. Menu and Production Planning

To produce meals for a variety of clientele.

To structure menus to meet individual needs.

To produce quality foods in quantity.

To identify and implement control factors in food production.

IV. Purchasing Procedures and Inventory Controls

A. Ordering, Receiving and Issuing Foods and Supplies

To develop correct purchasing procedures to maintain quality and quantity control.

To identify ordering, receiving and issuing techniques used in successful food operations.

To demonstrate use of equipment, forms and work habits for efficient purchasing.

B. Storage Facilities and Methods

To apply correct controls of temperature, space, facilities, and people.

To identify temperature requirements and storage facilities.

To define human practices that contribute to efficiency and profit.

C. Inventory Controls

To apply some of the store room procedures and control measures for efficient management.

To demonstrate physical inventory procedures.

To identify records and forms used for inventory control.

APPENDIX D

PROPOSED COMMUNITY COLLEGE COURSE DESCRIPTIONS

INTRODUCTION

FSER 120 Introduction to Food Service (var.)

An introductory course in commercial food service, including discussions of career opportunities in the industry and essential information about foods, sanitation, safety, terminology, and work habits.

FSER 120A Career Opportunities in the Food Service Industry and Job Descriptions (var.)

Individualized, self-study module with open lab hours in learning center. A study of career opportunities in food service management in hotels, restaurants, cafeterias, schools, clubs, and hospitals. Orientation to basic job descriptions and job requirements.

FSER 120B Safety and Sanitation: Food Terminology (var.)

Individualized, self-study module with open lab hours in learning center. A study of sanitation and personal hygiene, as applied to safe food handling practices. Includes fundamental bacteriology, study of food borne diseases and preventive measures, culinary terms and trade vocabulary, safety precautions and accident prevention.

FSER 123 Nutrition and Menu Planning (var.)

Principles of nutrition as related to food service and to the maintenance of good health. Preparation of well-balanced menus, which consider the format, cost, procurement, production, merchandising, and the use of essential nutrients.

FSER 123A Basic Nutrition (var.)

Individualized, self-study module with open lab hours in learning center. Basic principles of nutrition, study of the basic food groups and their contribution to health.

FSER 123B Restaurant Menu Planning (var.)

Individualized, self-study module with open lab hours in learning center. Study of the factors of a well-planned menu, including design, format, cost, procurement, personnel, equipment, clientele, and merchandising.

PURCHASING

FSER 131 Storeroom Operations and Stewarding Procedures (var.)

Study of the organization and operation of a central storeroom. Provides experience in ordering, receiving, pricing, storing, distributing, and controlling the flow of food, supplies, and equipment. Also covers the organization and operation of stewarding department, including dish-machine operation and general maintenance of equipment.
A Certificate of Completion will be awarded when a student completes this course with a minimum grade of "C."

FSER 231 Purchasing and Cost Control (var.)

Pre-requisite: FSER 121 or concurrent registration.
Study of food control systems used by hotels, food service companies, schools, and restaurants. Principles of and practice in purchasing foods and supplies. Experience in preparing daily and monthly cost reports and sales analysis.

DINING ROOM

FSER 135 Dining Room Service (var.)

Study and practice of proper serving etiquette for various types of table service, including experience in a public dining room.
A Certificate of Completion will be awarded when student completes this course with a minimum grade of "C."

FSER 235 Dining Room Supervision (var.)

Pre-requisite: FSER 135 or consent of instructor.
Study of problems and practice in the operation and organization of commerical dining room and banquet facilities; emphasis on customer relations, training, and supervising techniques.

PROFESSIONAL COOKING

FSER 140 Fundamentals of Cookery (var.)

Principles and skills in baking and cold foods production. Includes practice in preparing salads, sandwiches, appetizers, and desserts. Covers the techniques of using standardized recipes and the handling of commercial tools, equipment, and materials.

FSER 140A Fundamentals of Baking (var.)

Study of the fundamentals and principles of baking, including descriptions of igredients, scaling, and formulas, Students produce yeast products, quick breads, cakes, cookies, pies, and pastries.

FSER 140B Cold Food Pantry (var.)

Study and practice in preparation of salads, salad dressings, sandwiches, canapes, hors d'oeuvers, cold appetizers, and beverages.
A Certificate of Completion will be awarded when student completes this course with a minimum grade of "C."

FSER 140C Fundamentals of Cooking (var.)

Study and practice in preparation of soups, sauces, meat cookery, vegetable, and egg cookery; standardized recipes and portion control.

FSER 140D Short Order Cooking (var.)

A manipulative skills course in preparing and serving foods that can be prepared quickly and are common bill of fare in coffee shops, drive-ins, and cafes; includes breakfast cookery.
A Certificate of Completion will be awarded when student completes this course with a minimum grade of "C."

ADVANCED PROFESSIONAL COOKING

FSER 240 Culinary Art in Food Preparation (var.)

Pre-requisite: FSER 140 or consent of instructor.
Principles and skills in quality food preparation and quantity food production. Deals especially with foods commonly served by hotels and speciality restaurants. Provides culinary experience at various kitchen stations.

FSER 240A Meat, Fish, and Poultry Analysis (var.)

Definition, derivation, and identification of meat and meat products, including poultry and fish. Lectures, demonstrations, and practice in fabricating meats for professional kitchens.

FSER 240B Soups and Sauces: Basic and Advanced (var.)

Study and practice to develop skills and knowledge required of a hotel sauce cook for the preparation of basic and advanced soups and sauces.

FSER 240C Buffet Presentation (var.)

Preparation of hot and cold hors d'oeuvres, aspics, chaud-froids, mousses, buffet centerpieces, and ice carving. Studies are oriented to the aspects of garde manger work and include some international cuisines.

FSER 240D Asian Cookery (var.)

Lectures, demonstrations, and practice in Cantonese, Mandarin, Japanese, Korean, and other Pacific and Asian cuisines. Instruction in the use of special cooking equipment.

FOOD SERVICE MANAGEMENT

FSER 250A Equipment Layout and Design (var.)

Pre-requisites: FSER 240 and 241 or consent of instructor. Principles of space arrangement and work simplification. Study of planning, selecting, maintaining, and locating commercial equipment and facilities for various types of food service operations. Schematic drawings to show efficient food preparation and service layouts.

FSER 250B Food Service Management (var.)

Pre-requisites: FSER 135 and 240 or consent of instructor. Through case studies, analysis of management functions in commercial and institutional food and beverage production and service. Includes a study of production planning, kitchen organization, merchandising, and personnel and labor relations.

FSER 251 Food Service Internship and Seminar (var.)

Pre-requisite: Consent of instructor.
Supervised on-the-job food service experience in hotels, restaurants, public schools, clubs, and hospitals. Regular appraisal of learning progess.

FSER 199 Specialized Group Study (var.)

FSER 299 Individual Study (var.)

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